DUDLEY KNOX LIBRARY
NAVAL POSTGRADUATE SCHOOL
MONTEREY CA 93943-5101

L
N
M

NAVAL POSTGRADUATE SCHOOL
Monterey, California

THESIS

WHY THE UNITED STATES SHOULD
NEGOTIATE A BAN ON
NAVAL TACTICAL NUCLEAR WEAPONS

by

Todd Webster Malloy

December 1991

Thesis Advisor: Paul Stockton

Approved for public release
distribution is unlimited

REPORT DOCUMENTATION PAGE

Form Approved
OMB No 0704-0188

1a REPORT SECURITY CLASSIFICATION UNCLASSIFIED	1b RESTRICTIVE MARKINGS
2a SECURITY CLASSIFICATION AUTHORITY	3 DISTRIBUTION / AVAILABILITY OF REPORT Approved for public release; distribution is unlimited
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE	
4. PERFORMING ORGANIZATION REPORT NUMBER(S)	5 MONITORING ORGANIZATION REPORT NUMBER(S)
6a. NAME OF PERFORMING ORGANIZATION Naval Postgraduate School 6b OFFICE SYMBOL (If applicable) 38	7a NAME OF MONITORING ORGANIZATION Naval Postgraduate School
6c. ADDRESS (City, State, and ZIP Code) Monterey, CA 93943-5000	7b ADDRESS (City, State, and ZIP Code) Monterey, CA 93943-5000
8a. NAME OF FUNDING / SPONSORING ORGANIZATION 8b OFFICE SYMBOL (If applicable)	9 PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
8c. ADDRESS (City, State, and ZIP Code)	10 SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO / PROJECT NO / TASK NO / WORK UNIT ACCESSION NO

11. TITLE (Include Security Classification) WHY THE UNITED STATES SHOULD NEGOTIATE A BAN ON NAVAL TACTICAL NUCLEAR WEAPONS (UNCLASSIFIED)

12. PERSONAL AUTHOR(S) Malloy, Todd W.

13a. TYPE OF REPORT	13b TIME COVERED	14 DATE OF REPORT (Year, Month, Day)	15 PAGE COUNT
Master's Thesis	FROM _____ TO _____	December 1991	100

16 SUPPLEMENTARY NOTATION The views expressed in this thesis are those of the author and do not reflect the official policy or position of the (cont.)

17 COSATI CODES			18 SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	Naval Arms Control Naval Tactical Nuclear Weapons

19 ABSTRACT (Continue on reverse if necessary and identify by block number)

The naval tactical nuclear weapons that the US Navy has in storage neither provide adequate deterrence nor increased warfighting capability. If the US and the USSR eliminated these weapons the US Navy would be in a more dominant position compared to the Soviets. With both the US and USSR announcing unilateral removal of their tactical nuclear weapons from naval units, while at the same time maintaining them in storage, the US has tacitly agreed to a ban on these weapons without making any provisions for verifying Soviet compliance. This is not a good situation, all the drawbacks associated with these weapons remain, and none of the benefits of removing them from the inventory have been realized. As long as tactical naval nuclear weapons exist, the costs for maintaining, storing and training on these weapons will continue to be incurred. Moreover, in the present situation of unverified agreement, the Soviets still (cont.)

20 DISTRIBUTION / AVAILABILITY OF ABSTRACT	21 ABSTRACT SECURITY CLASSIFICATION
☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT ☐ DTIC USERS	Unclassified
22a NAME OF RESPONSIBLE INDIVIDUAL Dr. Paul Stockton	22b TELEPHONE (Include Area Code) (408) 646-2521 22c OFFICE SYMBOL NS/ST

DD Form 1473, JUN 86 Previous editions are obsolete S/N 0102-LF-014-6603

16. Continued:
Department of Defense or the U.S. Government.

19. Continued:
have access to non-strategic naval nuclear weapons. There is no assurance that some of these weapons will not find their way onboard a Soviet warship during unsettled times in the USSR. These issues can be resolved if the US seeks a mutually verifiabe treaty with the USSR completely banning naval tactical nuclear weapons.

Approved for public release; distribution is unlimited

Why the United States Should Negotiate a Ban on Naval Tactical Nuclear Weapons

by

Todd Webster Malloy
Lieutenant Commander, United States Navy
B.S., United States Naval Academy, 1981

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF ARTS IN NATIONAL SECURITY AFFAIRS

from the

NAVAL POSTGRADUATE SCHOOL
December 1991

c.1

ABSTRACT

The naval tactical nuclear weapons that the US Navy has in storage neither provide adequate deterrence nor increased warfighting capability. If the US and the USSR eliminated these weapons the US Navy would be in a more dominant position compared to the Soviets. With both the US and USSR announcing unilateral removal of their tactical nuclear weapons from naval units, while at the same time maintaining them in storage, the US has tacitly agreed to a ban on these weapons without making any provisions for verifying Soviet compliance. This is not a good siuation, all the drawbacks associated with these weapons remain, and none of the benefits of removing them from the inventory have been realized. As long as tactical naval nuclear weapons exist, the costs for maintaining, storing and training on these weapons will continue to be incurred. Moreover, in the present situation of unverified agreement, the Soviets still have access to non-strategic naval nuclear weapons. There is no assurance that some of these weapons will not find their way onboard a Soviet warship during unsettled times in the USSR. These issues can be resolved if the US seeks a mutually verifiabe treaty with the USSR completely banning naval tactical nuclear weapons.

DUDLEY KNOX LIBRARY
NAVAL POSTGRADUATE SCHOOL
MONTEREY CA 93943-5101

TABLE OF CONTENTS

I. INTRODUCTION.....1

II. THE NAVIES AND NUCLEAR WEAPONS.....8
A. CURRENT SITUATION.....8
B. NAVAL NUCLEAR ARSENALS.....11
1. Soviet Weapons..... .11
2. US Weapons.....13

III. NUCLEAR WEAPONS AT SEA.....18
A, THE ROLE OF NUCLEAR WEAPONS AT SEA.....19
B. WARFIGHTING.....25
C. INTERSERVICE RIVALRY.....32

IV. NAVAL ARMS CONTROL.....38
A. US POLICY AND HOW IT EVOLVED.....38
B. THE SOVIET VIEW OF ARMS CONTROL AT SEA.....43
C. THE SEARCH FOR A "NON-ZERO SUM".....45

V. BEYOND DETERRENCE AND WARFIGHTING.....54
A. THE ECONOMIC COSTS OF NUCLEAR WEAPONS.....54
B. TO CONFIRM OR DENY.....58
C. POLITICS AND NAVAL ARMS CONTROL.....63

VI. VERIFICATION ISSUES.....70
A. AS DIFFICULT AS OPPONENTS MAKE IT.....70
B. CHEATERS NEVER PROSPER.....75

VII. CONCLUSIONS.....80

APPENDIX - SOVIET NAVAL ARMS CONTROL PROPOSALS.....85

BIBLIOGRAPHY.....86

INITIAL DISTRIBUTION LIST.....92

ACKNOWLEDGEMENTS

Special thanks to:

Denise for typing;

Malibu for watching;

and

Colby for keeping Kay in line.

I. INTRODUCTION

President George Bush's announcement on 27 September 1991 that all naval tactical nuclear weapons will be placed in storage does not go far enough toward reducing the nuclear threat to the US Navy. This thesis argues that the United States should accept Soviet President Gorbachev's proposal for negotiations leading to a complete ban on naval tactical nuclear weapons.

Prior to President Bush's announcement, the long-standing United States position on naval arms control was reflected in the Department of Defense's Report on Naval Arms Control of April 1991, which stated: "Engaging in naval tactical nuclear weapons arms control negotiations would not benefit US national security." The report further states that eliminating naval tactical nuclear weapons would be both destabilizing and unverifiable.[1]

However, with both the US and USSR announcing the unilateral removal of their tactical nuclear weapons from operational units, while at the same time maintaining them in storage, the unverifiable arms control situation that the US Navy feared would arise has come to pass. The United States has tacitly agreed to a ban on naval tactical nuclear weapons without making any provisions for verifying Soviet compliance. This is not a good siuation, because all the

drawbacks associated with these weapons remain, and none of the benefits of removing them from the naval inventory have been realized. As long as tactical naval nuclear weapons are still in the US inventory, the costs of maintaining, storing and training on these weapons will continue to be incurred. Additionally, limitations on access to international facilities may occur. Given the present situation of unverified agreement, the Soviets still have access to non-strategic naval nuclear weapons. There is no assurance that some of these weapons will not find their way onboard a Soviet warship during unsettled times in the USSR. The solution is not to retreat into the past but to build on the de facto agreement now in place. These issues can be resolved if the US seeks a mutually verifiabe treaty with the USSR completely banning naval tactical nuclear weapons.

Since the early 1950s, the US Navy has maintained a tactical nuclear arsenal to deter outside aggressors and internal budget cutters. External reasons for naval tactical nuclear weapons include maintaining a strategic reserve in the event of all out nuclear war, compensating for weapons removed by the INF Treaty, deterring nuclear war at sea, and as a regional conflict trump card. At one time each of these concepts presented a valid reason for maintaining a naval nuclear arsenal. Those times are now past, and in the words of Vice Admiral Henry Mustin: "There is a recognition that if there is a nuclear war at sea, we [the US Navy] have more to lose than the Russians."[2]

Within the US defense establishment the Navy has required nuclear weapons for another reason. When the Air Force was established as a separate service in 1947 it attempted to gain exclusive control over nuclear weapon production, storage and use. Recognizing that without nuclear weapons its budget would be gutted, the Navy fought back. The ensuing "Admiral's Revolt" resulted in the Navy maintaining a small piece of the nuclear arsenal. With the advent of the Eisenhower Administration's "New Look" strategy, which placed an even heavier emphasis on nuclear warfighting, the Navy developed nuclear submarine launched ballistic missiles (SLBMs), depth bombs, antiair and antisubmarine guided missiles, and finally the sea launched cruise missile (SLCM).

The major problem with the United States retaining non-SLBM seabased nuclear systems, even in storage, is that their existence helps justify Soviet maintenance of a naval tactical nuclear arsenal. The Soviet Navy has envisioned using nuclear weapons at sea to counter the superior US Navy much as NATO once conceptualized blunting the Red Army's armored forces with battlefield nuclear weapons during a general European war. Since the ascendancy of Mikhail Gorbachev, the Soviets have repeatedly called for naval arms control. The United States, which once dismissed naval arms control as a Soviet ploy to gain maritime parity, should now seek to use arms control as a way to enhance US national

security. To compensate for its shortcomings the USSR has equipped its fleet for a sudden one-shot attack against the US Navy. This decisive battle is the only way the Soviets could prevail at sea against the US.[3] Far from a weakening of US naval strength, complete elimination of seabased tactical nuclear weapons will leave the US Navy considerably stronger relative to the Soviet Navy.

Eliminating tactical naval nuclear weapons would benefit the United States by greatly reducing the first strike kill probability during a no-notice attack against a battle group by a limited Soviet force. Additionally, by banning these weapons, the threshold for nuclear war at sea would be raised. Soviet forces would probably not deem a nuclear strike necessary against an opponent armed only with conventional arms. The elimination of these weapons would reduce the number of conflicting missions required of each operational naval unit, increasing the battle group commander's ability to control his assets without interference from higher authority. Furthermore, this action would eliminate the politically sensitive "can neither confirm nor deny the presence of nuclear weapons" issue when visiting foreign ports.

The Soviets surely realize that lack of tactical seabased nuclear weapons will weaken them versus the US Navy. However, their overriding military concern is the security of the Soviet landmass. They appear willing to

sacrifice tactical naval nuclear weapons in order to eliminate the nuclear SLCM threat to the USSR.[4] Therefore, the Soviet Union can be induced into cooperating with the United States because they would benefit from eliminating tactical naval nuclear weapons by removing a significant nuclear threat to the Soviet homeland, particularly the nuclear armed sea launched cruise missile.

The economic benefits associated with complete elimination of tactical naval nuclear weapons, rather than placing them in storage, are considerable. In 1990 the US spent at least $500 million on training and security associated with these weapons.[5] These costs will remain if non-strategic naval nuclear weapons are merely stored away and not eliminated. When compared with yearly costs of operating a battleship at $63 million, or an Aegis crusier at $15.8 million[6] it is apparent that funds directed at tactical naval nuclear weapons could be better spent elsewhere.

Another important reason for eliminating naval tactical nuclear weapons is the precedent it sets in the field of nuclear nonproliferation. The easiest way to discourage the proliferation of naval nuclear weapons is to demonstrate the lack of utility of tactical naval nuclear weapons and to remove the nuclear threat from non-SLBM naval systems.

Verification is probably the most contentious of issues surrounding a ban on nuclear weapons at sea. An intrusive

inspection regime is required, nonintrusive inspections are useful but do not give the degree of assurance required to adequately insure compliance. Intrusive inspections will involve some inconvenience to the fleet, but surely would be less time consuming and expensive than the costs associated with nuclear weapons on general purpose naval forces.

In summary, the United States will benefit in significant ways if naval tactical nuclear weapons are eliminated. However, these benefits will not be realized if the weapons are just placed in storage. Obtaining a mutual ban on these weapons will require more effort on the part of both nations, but the return will also be greater.

In order to support the idea that a total ban on tactical naval nuclear weapons is desirable, the following methodology will be employed. Chapter II will review the recent initiatives concerning naval tactical nuclear weapons. The role of non-strategic nuclear weapons in US and Soviet naval operations will be discussed in Chapter III. Chapter IV will examine proposals for naval arms control. Chapter V will calculate the economic costs associated with US tactical naval nuclear weapons. The policy of "neither confirm nor deny" will also be reviewed in Chapter V as well as the implications of these weapons for US foreign policy. Finally, Chapter VI will examine the feasibility of an effective verification regime supporting a total ban on tactical naval nuclear weapons.

[1]US Department of Defense, Report on Naval Arms Control, 1991, p.19.

[2]US Congress, House, Committee on Appropriations, Hearings on Research, Development, Test and Evaluation: Navy before the Defense Subcommittee, 100th Cong., 1st Sess., 1987, part V, p.561.

[3]Gordon H. McCormick and Mark E. Miller, "American Seapower at Risk: Nuclear Weapons in Soviet Naval Planning," Orbis, Summer 1981, pp.351-367.

[4]US Congress, Senate, Armed Services Committee, Approaches to Naval Arms Control: Hearings before the Projection Forces and Regional Defense Subcommittee, 101st Cong., 2nd Sess., 1990., p.14.

[5]Letter to author from Congressional Budget Office Analyst, 28 August 1991.

[6]Speech by Vice Admiral Robert K. Kihune, Assistant Chief of Naval Operations, Surface Warfare, Monterey, CA, 25 July 1991.

II. THE NAVIES AND NUCLEAR WEAPONS

Since the beginning of World War II the primary missions of the US Navy have been sea control and power projection ashore. These missions require various types of ships and aircraft, along with considerable specialized training. However, a common thread runs through all American naval thinking: the US Navy is designed to conduct offensive operations anywhere in the world under any conditions. Certainly America is not bent on the military conquest of the world, but rather its navy is a reflection of that old axiom "the best defense is a good offense." In contrast, the Soviet Navy has a more defensive posture. Differences between the navies are evident in many areas, including their recent naval nuclear arms reduction proposals and their dissimilar naval nuclear arsenals.

A. CURRENT SITUATION

Describing the United States as a "continental island" that is tied to allies, trading partners and resources by the oceans, former Secretary of the Navy John Lehman states that the United States must have "unquestioned superiority on the seas" to maintain its place in the world. Citing the fact that half of the American population resides within 150 miles of an ocean, he continues by calling maritime superiority a national level "security imperative."[1]

Until 27 September 1991, part of the US effort to achieve maritime superiority was the United States' tactical naval nuclear weapons stockpile. On that day, President Bush altered the long term US policy of maintaining a deployed force of non-strategic naval nuclear weapons in case of a nuclear war involving naval forces. The President announced that the United States would remove all nuclear Tomahawk cruise missiles from its surface ships and submarines, as well as nuclear bombs aboard aircraft carriers. Additionally, weapons carried by land based naval aircraft were also withdrawn from service. Some of these weapons are slated for destruction. However, most will be retained in storage in case they are needed in a crisis. President Bush then challenged Soviet President Gorbachev to make the same reductions in his nation's nuclear arsenal.[2]

The US action presented a difficult choice to the Soviets. The Soviet Navy has demonstrated a more defensive posture than the US Navy. While Soviet warships are in evidence around the globe; their more limited operational tempo, lack of underway replenishment vessels and sea based aviation, and the relative paucity of amphibious sealift and training suggest a navy oriented along more defensive lines. Even Soviet strategic ballistic missile submarines generally operate within defensive bastions.[3] Of the Soviet naval missions, the ones that support the land war are the most important, because from the Soviet viewpoint, wars are

fought about territorial control and are largely won or lost on land.[4] Hence the Soviet Navy's first role in wartime, the protection of Soviet coastlines, is essentially defensive. As part of this defensive posture, the Soviet Navy traditionally relied more heavily on nuclear weapons then did the US Navy, particularly in the area of anticarrier warfare.[5] Nevertheless, on 5 October 1991, Soviet President Gorbachev matched President Bush's unilateral action. Furthermore, the Soviets called for negotiations leading to a complete ban on all naval tactical nuclear weapons.[6]

As the situation now stands, the US and USSR have entered into a tacit agreement to remove tactical naval nuclear weapons from operational naval units. This agreement is based on each side trusting the other to comply with the announced terms. There are no provisions in either declaration for verifying that either side has actually removed its non-strategic naval nuclear weapons from operational naval units.[7]

Entering into an arms control agreement without any verification procedures is in direct contradiction to stated US policy for maintaining the security of the United States.[8] Furthermore, in the words of Former Secretary of Defense Weinberger: "I am quite skeptical as to our ability to trust some governments ... particularly the Soviet Union at this time."[9] It would be far wiser to accept the

Soviet offer to negotiate a verifiable ban on all naval tactical nuclear weapons in both nations' arsenals than to place faith in an unwritten de facto agreement with no verification provisions.

B. NAVAL NUCLEAR ARSENALS

To support their national policies, the US and USSR maintain large but asymmetrical stockpiles of naval tactical nuclear weapons. Just as the US Navy is more offensively oriented than the Soviet Navy, its naval nuclear arsenal is more oriented towards strike warfare than is the Soviet's naval nuclear arsenal. The Congressional Research Service (CRS) reports that there are approximately 5200 non-SLBM nuclear warheads in the American and Soviet inventories.[10] These include US cruise missiles and aircraft bombs; and Soviet nuclear variants of all naval weapons systems except shipboard guns.

1. Soviet Weapons

The weapons that the Soviets will place in storage include the nuclear versions of the USSR's eight sealaunched nuclear capable cruise missiles. All but two of which are primarily intended for antisurface ship warfare.[11] The exceptions, the SS-N-21 and SS-NX-24 missile are land attack weapons. The SS-N-21 appears to be a near clone of the US land attack SLCM. And while the not yet fully operational, the SS-NX-24 is a supersonic cruise missile with an

estimated range of 2700 miles.[12] The other sea launched cruise missiles are dual capable systems which can carry either nuclear or high explosive ordinance and are primarily intended for antiship use. In addition to the Soviet's 300 sone nuclear SLCMs, they also maintain about 450 nuclear air launched antiship cruise missiles (ALCMs) in four versions. These weapons are controlled by Soviet Naval Aviation (SNA) and could be augmented by the AS-15 missiles of Soviet Strategic Aviation operating in an antiship role.[13] It must be noted that in a general war scenario the plethora of Soviet missile types would make it extremely difficult to determine whether an incoming SLCM or ALCM carried a conventional or nuclear warhead no matter how carefully a missile's flight profile was tracked.

In addition to nuclear SLCMs, Soviet submarines and possibly surface ships carry nuclear torpedoes. The Soviet government announced this fact in April 1989 following the sinking of the MIKE class submarine Komsomolets.[14] It is believed that these nuclear torpedoes are anticarrier or antiharbor weapons, rather than antisubmarine weapons. For antisubmarine warfare (ASW), Soviet submarines have two ASW standoff missiles similar to the US Navy's now deactivated SUBROC system.[15] The total number of nuclear torpedoes and ASW standoff weapons is unknown, but estimates range up to 1000.[16]

Soviet warships are also judged to be armed with nuclear capable antiaircraft missiles to be used against attack aircraft, or in a secondary antisurface unit role.[17]

2. US Weapons

On 28 September 1991, Secretary of Defense Cheney signed a memorandum which ordered that "tactical nuclear weapons be removed from all [US] surface ships, submarines and land-based naval aircraft bases."[18] These weapons are to be placed in storage so they are available for use in a future crisis if a need arises for them. Some, but not all of these weapons will eventually be dismantled.[19] The US Navy has only two non-SLBM nuclear capable systems in its inventory, the nuclear SLCM and aircraft dropped bombs. The aircraft bombs carried by US Navy planes are common to the other US armed forces. Bombs under US Navy control are for use by both carrier based aircraft and land based P-3 patrol planes. Approximately 2,200 of these weapons are in the US naval inventory.[20] The most prominent of the bombs is the B-57 bomb which can be used as an ASW weapon as well as in antiship or land attack roles. The B-57 had been slated for replacement by the B-90 in the mid 1990s. However, the Navy had trouble justifying its procurement to the Congress. In fact, even before Secretary Cheney's memorandum, for the fiscal year 1992 budget cycle, the Navy had redirected all of its funding supporting the development of the B-90

warhead. As a result, the Senate "zeroed out" the much larger Department of Energy (DOE) B-90 development funding. In the words of a Senate staffer: "We could not see why the DOE should spend money on a weapon the Navy isn't very interested in obtaining."[21] As a result of the President's initiative, the depth bomb version of the B-57 will be scrapped, although the Navy will retain its nuclear strike bombs.[22]

The US Navy's other nuclear system is the nuclear SLCM, also known as the Tomahawk Land Attack Missile, Nuclear (TLAM/N). Capable of being launched from either attack submarines or surface ships, the TLAM/N has a range of about 1350 miles.[23] Though the Navy had originally intended to purchase over 700 TLAM/Ns, the actual purchase has been much smaller. Only 450 have been requested through fiscal year 1991.[24] For fiscal year 1992, no funds were approved for TLAM/Ns.[25] The nonbinding declared limit on nuclear SLCMs for both parties in the START Treaty is 880. However, it is nearly certain that the US will never build anywhere near that number of nuclear SLCMs.

To summarize, the US Navy currently has about 2,200 nuclear bombs for ASW and strike warfare and about 400 TLAM/Ns for strike warfare. The Soviet Navy has about 750 SLCMs and ALCMs in its inventory, most with a primarily antiship mission. Additionally, the Soviets maintain about 3,000 nuclear aircraft bombs, torpedoes and antiaircraft

missiles designed to fight a war at sea. These asymmetrical Soviet and American naval nuclear inventories are a direct reflection of the differences between the US and Soviet navies and have great bearing on how each nation views naval arms control.

[1]John F. Lehman, Command of the Seas, (New York: SCribners, 1988), p.119.

[2]New York Times, 28 September 1991, p.4.

[3]Bryan Ranftand and Geoffrey Till, The Sea in Soviet Strategy, 2nd Ed., (Annapolis: Naval Institute Press, 1989), p.191.

[4]Ibid., p.158.

[5]Gordon H. McCormick and Mark E. Miller, "American Seapower at Risk: Nuclear Weapons in Soviet Naval Planning," Orbis, Summer 1981, pp.351-367.

[6]New York Times, 6 October 1991, p.1

[7]Ibid.

[8]Thomas A Brooks, "The US View-Still Cautious," US Naval Institute Proceedings, May 1991, pp.183-185.

[9]Letter to the author from Casper W. Weinberger, Former Secretary of Defense, 11 September 1991.

[10]US Congress, Senate, Armed Services Committee (SASC), Approaches to Naval Arms Control: Hearings before the Subcommittee on Projection Forces and Regional Defense 101st Cong., 2nd Sess., 1990, p.89.

[11]Jane's Fighting Ships 1990-1991 (London: Jane's Information Group, 1990) pp.588-589.

[12]Jan Breemer, Soviet Submarines: Design Development Tactics, (London: Jane's Information Group, 1989) p.152.

[13]Joshua Handler and William Arkin, Nuclear Warships and Naval Nuclear Weapons 1990, (Washington: Greenpeace, 1990) p.15.

[14]New York Times, 18 April 1989, p.1.

[15]Breemer, Soviet Submarines, p.110.

[16]Handler, Nuclear Warships and Weapons, pp.13-15.

[17]Jane's Weapons Systems 1990-1991, p.501.

[18]Photocopy of Secretary of Defense Memorandum dated 28 September 1991 printed in New York Times, 29 September 1991, p.8

[19]New York Times, 29 September 1991, p.6.

[20]SASC, Approaches to Naval Arms Control, p.89.

[21]Interview with Bill Lynn, Senator Kennedy's Staff, 5 August 1991.

[22]David S. Steigman, "Nuke Removal Signals Changes," Navy Times, 14 October 1991, p.14.

[23]Janes Weapons Systems 1990-1991, p.27.

[24]David Bond, "Navy Mulls Nuclear Tomahawk Needs: Seeks to Extend Production Program," Aviation Week and Space Technology, 4 June 1990, p.25.

[25]Lynn interview, 5 August 1991.

III. NUCLEAR WEAPONS AT SEA

The US Navy's rational for maintaining seabased tactical nuclear weapons is twofold. The first is that they offer deterrence and warfighting options not available with conventional weapons. Second, they provide a partial justification for the current naval force structure. Critics, however, dispute this rationale and question the need for tactical naval nuclear weapons. In the words of former Secretary of the Navy John Lehman, seabased tactical nuclear weapons were developed under a "naive view of nuclear warfare that prevailed long ago" and they are no longer useful.[1] Or, as stated by former Chairman of the Joint Chiefs of Staff, Admiral William Crowe: "Keeping naval tactical nuclear weapons allows us [the US Navy] to justify a higher naval force level than we would otherwise require."[2] President Bush has directed that all of these weapons be kept in storage facilities rather than onboard fleet units. However, tactical naval nuclear weapons will still continue to be a part of the US Navy's inventory, and therefore available for use in a crisis. This chapter will argue that if neither the US or USSR had naval tactical nuclear weapons than the US Navy would be in a stronger position relative to the Soviet Navy. Therefore, the United States should accept Soviet President Gorbachev's proposal to negotiate a ban on naval tactical nuclear weapons.

A. THE ROLE OF NAVAL NUCLEAR WEAPONS

The US Navy sees its non-SLBM nuclear weapons in two possible roles: as strategic reserve weapons in a post nuclear war environment, or as a theater countervailing force which ensures escalation parity, if not escalation dominance. Questions remain about whether naval nuclear weapons are truly useful in either of these roles.

In congressional testimony in 1982, then-Rear Admiral Kelso stated that the nuclear SLCM "will be available for selective release in non-SIOP [Single Integrated Operational Plan] options, and in a post SIOP environment it will contribute to the strategic reserve force."[3] However, the ability of naval surface forces to survive in an all out nuclear war is debatable. Additionally, even if they did survive the initial fighting, many of the 400 or so nuclear SLCMs, and a significant percentage of carrier based nuclear bombs, would be out of range of follow up targets in the Soviet Union. Finally, target mapping for cruise missiles is a relatively difficult and time consuming task that would be even harder to accomplish in the confussion following a strategic nuclear war. Therefore, striking any unanticipated follow on targets with nuclear SLCMs would be nearly impossible. Post SIOP nuclear deterrence is probably best left to SLBMs and surviving land based strategic bombers.

As a countervailing theater level force, naval nuclear weapons have three possible uses: deterence of nuclear war at sea; replacements for treaty eliminated Intermediate Nuclear Forces (INF); and as a third world conflict trump card. Of these three areas of potential utility, nuclear deterence at sea may be the least practical because of the asymetries in the naval force structures of the superpowers. Proponents of naval tactical nuclear weapons believe that by maintaining naval nuclear weapons systems the US can assure nuclear deterrence at sea in the same manner as strategic nuclear deterrence is achieved: by threatening to counter any nuclear attack against a US naval unit with a retaliatory strike from another US warship. As mentioned earlier, Soviet naval non-strategic nuclear weapons are primarily designed to destroy ships and submarines. American naval non-strategic nulcear weapons primarily have land attack missions. If a US battle group was attacked with atomic arms would the US retaliate against the Soviet homeland? Conversely, would the Soviets respond to an American nuclear SLCM attack on the Kola Peninsula by only striking back against the launching naval units? The answer to both questions is probably not, because any attack against Soviet homeland targets invites the very real possibility of igniting a massive strategic exchange.[4] Since the use of sea based non-SLBM nuclear weapons against the USSR risks all out nuclear war, how would the US respond

to a nuclear attack on a battle group? If the Soviets were aware of a nuclear armed battle group approaching their shores during wartime, it might seem prudent to then to preempt the threat, even if it meant using nuclear weapons. If a US battle group were attacked by nuclear weapons during a Soviet-American general, but non-nuclear war, it is unclear whether the US national command authority would launch nuclear weapons in reprisal against Soviet land targets. Additionally, the US Navy's antiship nuclear arsenal is limited to aircraft bombs. In other words, American retaliatory steps for such an attack are limited by both a desire to avoid armageddon, and very limited antiship nuclear assets. In view of this situation, exclusively naval nuclear deterence does not really exist and the capabillity of the US Navy to deter nuclear war at sea is questionable.

The second theater role envisioned for naval nuclear weapons involves countering the Soviet threat to NATO. Since the signing of the Intermediate and Shorter Range Nuclear Forces (INF) Treaty in late 1987, naval nuclear weapons, particularly SLCMs, have been viewed as replacements for systems banned under the treaty.[5] Nuclear SLCMs would support NATOs nuclear response posture by striking at the advancing Red Army in Europe or at military targets within the Soviet Union. The utility of naval nuclear weapons providing security for NATO is suspect

on two counts. First, in light of the disestablishment of the Warsaw Pact and the Conventional Forces in Europe (CFE) Treaty, is the Soviet Union a great enough threat to NATO that conventional deterence and NATO's European based air launched nuclear weapons cannot deter an attack? Second, since the INF Treaty banned ground launched cruise missile (GLCM) is virtually identical to the nuclear land attack SLCM in both performance and mission, is using SLCMs to replace GLCMs removed by the INF accord in effect cheating on the treaty? Obviously the US position is that SLCMs are not covered under the INF accord because they are naval weapons. However, what could be said if the USSR mounted an INF Treaty banned SS-20 system on a barge in the Baltic Sea and called it a naval system? Would it also be "legal"? Using naval nuclear weapons to circumvent the INF Treaty is both questionable legally and unnecessary militarily.

The third and last envisioned theater role for naval nuclear weapons is as a countervailing threat in a third world conflict. In such a conflict the basic question is whether a third world power could ever threaten the security of the United States seriously enough so that the use of nuclear weapons against that country could be justified to the American people. Even in the recently concluded Gulf War, Iraqi threats to use chemical weapons and active attempts at production of an atomic bomb were not enough to spur the United States into openly threatening use of

nuclear weapons. In light of the United States' extreme concern with limiting Iraqi civilian casualties and collateral damage, using such weapons could hardly be justified. And even if such strikes were reviewed, what possible target in Iraq, or any third world nation, is both strong enough to defy sophisticated conventional ordinance and valuable enough to break the forty-six years of nuclear peace? The proliferation of nuclear weapons in the third world is most easily slowed by demonstrating the lack of utility of such weapons, because the world community will not tolerate their use or threat of use. Therefore, any nuclear threats by the US in the third world would have the dire political consequences of legitimizing nuclear blackmail by any nation. Despite a US policy calling for reduced reliance on nuclear weapons,[6] it is always possible that some situation could arise where a US nuclear strike is required outside of a US-USSR conflict. However, the very improbability of such a scenario indicates that rather than binding a significant percentage of naval general purpose forces to a limited non-strategic nuclear mission, tasking of this sort is better suited to US based Air Force bombers armed with cruise missiles.

National security interests of the United States would be served by eliminating the sea borne nuclear weapons threat to battle groups or convoys transiting to world troublespots. Removal of Soviet nuclear weapons would

eliminate the possibility that a single vessel such as an OSCAR class submarine armed with twenty-four nuclear capable SS-N-19 missiles with at least a 250 nautical mile range could launch a no-notice nuclear first strike against a battle group with a high probability of success. However, a successful strike with conventionally armed SS-N-19s would require upwards of 100 missiles.[7] As is always the case when a nation holds a significant edge in conventional weapons, it would benefit the United States to set a high nuclear threshold by eliminating sea based nuclear weapons.[8]

From the Soviet's primarily defensive viewpoint the major threat against them is the SLCM. Though slow moving and generally thought of as a theater rather than a strategic strike weapon, the nuclear Tomahawk land attack missile (TLAM-N) is listed by the respected Jane's Weapons Systems as a strategic weapon.[9] Whatever its classification, the TLAM/N has the ability to deliver nuclear warheads into the USSR. As a result of this nuclear threat to the their homeland, the Soviets may be tempted to escalate to the nuclear threshold to remove the nuclear launch platforms. Some argue that since the Soviet Navy is "weaker" than the US Navy, it is not in their interests to give up atomic weapons.[10] However, it must be noted that a reduction in Soviet nuclear strength at sea would be more then compensated for by the increased security that results

from the removal of the nuclear SLCM threat to the Soviet homeland. In fact, the USSR is so concerned with the threat posed by SLCMs that some Soviet flag officers maintain that such weapons constitute a fourth component of strategic forces along with ICBMs, SLBMs and strategic bombers.[11] The desire of President Gorbachev to eliminate this new strategic threat is probably the reason for his proposal to eliminate all non-SLBM naval nuclear weapons. Whether stored ashore, or maintained onboard ships and submarines, the utility of naval tactical nuclear weapons as strategic reserve weapons or as a theater countervailing forces is doubtful.

B. WARFIGHTING

Whatever the perceived role of tactical naval nuclear weapons, in the event that these weapons are placed onboard naval units in a crisis their effect on warfighting will be profound. The impact of tactical naval nuclear weapons on warfighting can be divided into two areas, war at sea and strike warfare ashore. The US concept of nuclear weapons in war at sea is to deter Soviet use of such weapons. The idea is that if the Soviets contemplate use of nuclear weapons against US naval forces prior to their use ashore, then the US Navy's nuclear arsenal will deter them. This conceptualized deterence is not in the US Navy's ability to strike the Soviet surface force, but in striking the Soviet

submarine force. Navy Captain Linton Brooks of the staff of the National Security Council (NSC), and later the chief negotiator of the final version of the START Treaty states that use of nuclear weapons against Soviet surface forces would actually "weaken deterence" because it could lead to a series of "tit for tat" exchanges that would destroy both surface fleets.[12] Since the US relies on its surface fleet more heavily than the Soviets do, this would have a greater negative impact on the US than it would on the USSR. Instead, Captain Brooks and others advocate using nuclear ASW weapons to hold the Soviet submarine force at risk,[13] which they believe will have greater deterrent effect on Soviet use of naval nuclear weapons than would threatening the Soviet surface fleet.[14] This belief in nuclear ASW deterrence has led the United States to maintain nuclear depth bombs after its other war at sea nuclear systems were deactivated. Unfortunately this theory of the deterrent value of nuclear ASW is flawed.

US nuclear ASW is not a deterrent factor because it is not a credible threat to Soviet submarines. First, the key to submarine survival is stealth and the design of all modern submarines maximizes the submarine's ability to hide. The number one problem in ASW is finding the enemy submarine, not destroying it.[15] Nuclear weapons do not help find hidden submarines, but are used to destroy them once located. Former Navy Secretary John Lehman believes

nuclear ASW weapons are at best only marginally more effective against targeted enemy submarines than are modern US ASW systems.[16] This is primarily because nuclear depth bombs do not contain the guidance systems that give smart conventional ASW weapons direct contact detonation against a submarine's hull. Second, use of nuclear ASW weapons makes even less sense when the "blue-out effect" is considered. Blue-out occurs after a nuclear weapon is detonated underwater. The underwater burst ensonifys the water to such a degree that some passive and active sonar systems can be rendered useless for hours following the burst.[17] If the blue-out effect is considered, the unworkableness of the concept of using the nuclear depth bomb to "provide a hedge against a catastrophic failure of conventional ASW"[18] weapons is revealed. The use of one nuclear depth bomb would seriously hinder targeting other submarines. Third, if the threat of nuclear ASW weapons is to be credible, then the US Navy must educate and train on nuclear ASW tactics. Even before the President's nuclear reduction initiatives, the US Navy rarely trained for nuclear ASW. The Curriculum Officer of the Naval Postgraduate School's (NPS) ASW curriculum flatly states that nuclear warfare is "not covered" in the school's ASW program.[19] Furthermore, the Pacific Fleet's ASW Squadron (Destroyer Squadron 31) did not emphasize nuclear ASW drills from 1988 until 1991.[20] Nor is nuclear ASW training heavily stressed in land based

patrol plane (P-3) squadrons which are only required to conduct a limited number of nuclear ASW drill per year.[21] If the US Navy does not train on nuclear ASW tactics, than conducting ASW with nuclear weapons will be difficult. US nuclear weapons at sea will not deter the Soviets from launching a nuclear war at sea because the nuclear ASW weapons that the US does possess are not a credible threat to the Soviet fleet. In the future, the US threat to use tactical nuclear weapons in a war at sea role will even further diminish as the remaining US nuclear ASW weapon, the B-57 depth bomb, is phased out of service.[22]

Naval tactical nuclear weapons are actually destabilizing. In time of crisis, most deployed US naval nuclear weapons will be based onboard aircraft carriers. Therefore, destroying the carriers would eliminate most afloat US nuclear weapons. Only a few Soviet nuclear strikes aimed at the carriers could eliminate the majority of the afloat US nuclear arsenal. In a crisis, this situation alone could lead to a Soviet preemptive strike on the US carrier force.[23] The warfighting associated with nuclear SLCMs is just as problematic as nuclear ASW. Aside from the difficulty in establishing a strategic rationale for arming naval units for nuclear strike warfare, the ability to effectively use nuclear sea based cruise missiles or aircraft bombs against the USSR is questionable.

In the Gulf War the US Navy's ability to conduct strike warfare against a relatively well equipped enemy using conventional ordinance was excellent. However, the ability of the US Navy to effectively conduct nuclear strike warfare against the USSR outside of the SLBM role is quite another matter. During the Gulf War, the US Navy did not have to fight its way into SLCM and aircraft range of Iraqi targets. Among the first shots of the war were conventional land attack SLCM's into key targets in Bagdad. Because of the geographic distances involved, and due to the more capable Soviet naval oriented defense, the ability to strike at Soviet targets will be more limited. Trade offs between conventional naval warfighting and positioning for nuclear strikes will also have to be made.

In a limited regional conflict the ability of the US Navy to conduct strike warfare will not be hampered by out of area submarine or air threats. As in the Gulf War, sea control will be established within weapons range of the enemy targets, and strike warfare, whether nuclear or conventional, will be possible with only a moderate enemy threat to naval forces. In such a situation, naval units; air, surface, or subsurface will be free to concentrate primarily on strike warfare. In a general war with the USSR this will not be the case. In a war with the Soviets, the US Navy will have to contend with a worldwide submarine threat and an extremely long range air threat. It is even

possible that the Soviet surface fleet could sortie well out to sea. In a conflict with the Soviets, just getting US surface and air units within weapons range of the Soviet Union will be extraordinarily difficult. The nearer the Soviet Union the battle force proceeds, the greater the threat to the force from the USSR's layered defenses. As the threat increases, units will have to spend more time defending themselves from attack. The most capable US surface units; Aegis cruisers, Burke and Spruance destroyers are all multi-mission ships that aside from carring SLCMs perform antisubmarine, antiaircraft, and antisurface missions. When closing on the Soviet coastline the battle force commander will have to devote a significant proportion of his resources to defending the battle force rather that diverting them to conduct strike warfare using SLCMs. Certainly some strike warfare using SLCMs will be possible from within the battle group, but keeping all SLCM armed ships together while supporting the carrier force will limit their striking range. If the SLCM launchers operate independently then they will be even more vulnerable to attack. This problem also holds true for carrier aviation. As the carriers approach the Soviet Union their aircraft will be needed to defend the force against attack. The ability of the carrier force to mount offensive strikes will depend on how much effort the Soviets are utilizing to defend against it. As long as a carrier force is a nuclear

threat it can be assumed that the resources the Soviets will throw against it will be nothing less than massive.

In the event of a general war with the Soviet Union the most reliable way of targeting the USSR with nuclear SLCMs is the US attack submarine. Stealtly and far ranging, attack submarines allow nuclear SLCM's to be launched much closer to the USSR than surface launched SLCMs or aircraft bombs. However, using submarines in this manner has a price. Submarines designated for SLCM launch will most likely be unable to participate in antisubmarine warfare for SLBM submarines, protection of carrier groups, or special operations. Just as surface units will be limited to operating around SLCM launch points, so are SLCM armed submarines. Even though warships routinely perform more than one mission at a time, the geographic limitations imposed on naval units by the requirement to be in a nuclear SLCM launch position will hinder other operational missions.

The forward area nature of US naval strategy makes all naval nuclear weapons a threat to the Soviet homeland. Because the US Navy has nuclear weapons, and all of them can be moved within range of USSR they present a significant threat to the Soviet Union. While the nuclear weapons within the strategic triad; ICBMs, SLBMs, and land based bombers are relatively easy to distinguish as nuclear threats. The same cannot be said of non-SLBM naval nuclear weapons. Interspersed with conventional weapons, there is

no clear point where Soviet officials could definitely state that inbound naval weapons are nuclear or conventional. If confronted with this choice in a general war, would the Soviets choose to believe a limited nuclear attack from the sea was underway? If they believed the attack to be nuclear, how would they respond? Such questions cannot be answered with any degree of certainty, but military commanders prudently tend to act against the worst-case scenario. In a US/USSR general war the worst-case for Soviet naval commanders would be to see themselves as under nuclear attack from the sea. The worst-case US scenario would be to suffer a nuclear surprise attack from the Soviet's huge antiship nuclear arsenal, which Soviets would use to prevent the US Navy from conducting a possible nuclear attack on the Soviet homeland. The easiest and safest way for the superpowers to avoid this situation is for both nations to eliminate their tactical naval nuclear weapons.

C. INTERSERVICE RIVALRY

Just removing naval tactical nuclear weapons from active naval units and placing them in reserve will mean that the US[24] and probably the USSR, will continue to maintain, train for, and secure nuclear nuclear weapons as if they are still deployed in order to facilitate their return in the event of a crisis. In view of the above arguments it would

seem rational for the US Navy to abandon tactical naval nuclear weapons, especially if both the US and USSR negotiate them away. However, the US Navy has shown no inclination to do so. Just as there is some military rational for retaining these weapons, there are also budgetary reasons for keeping them.

It was interservice budget rivalry that led to the Navy's adoption of nuclear arms and its subsequent reluctance to give them up. The US Navy is often accused of maintaing tactical nuclear weapons just for the sake of having them. Such beliefs do have some basis in fact, and can be traced back to the "supercarrier debate" of 1948-49. The result of the debate was the cancellation of the proposed carrier, United States, when it was determined that it was not required to augment the Air Force's nuclear strategic bombing capability. The cancellation seemed to confirm the Navy's fears that the integrated defense establishment's support of nuclear weapons would shortchange the Navy and erode its co-equal status with the other services.[25]

The uproar which followed the cancellation became known as the "Admirals Revolt." In the ensuing months the first Chairman of the Joint Chiefs of Staff (JCS), General of the Army Omar Bradley testified before congress that since the Air Force had been assigned primary responsibility for strategic bombing, and because the Soviet Navy was

"negligible" except in submarine strength it would be "grossly wasteful" and "militarily unsound" to fund a larger US Navy.[26]

Two years latter came the "New Look" nuclear strategy of the Eisenhower Administration which featured a greater emphasis on nuclear weapons combined with much reduced conventional land and naval forces.[27] During the remainder of the 1950s the Air Force would receive nearly half of the defense budget and would exercise telling influence over US military planning.[28] It became increasingly apparent that the only way to maintain the fleet's force structure was for the Navy to move into nuclear armaments in a significant way. As time passed, the Navy developed nuclear capabilities for nearly all of its weapons systems, a condition that continued until the 1980s. Only recently, as the limitations of nuclear arms received more recognition, has the Navy taken a more circumspect view of these weapon's desirability. In 1989, for cost savings, and with little fanfare, the United States unilaterally deactivated the nuclear portion of three tactical weapons systems: the surface launched antisubmarine rocket (ASROC); the submarine launched antisubmarine rocket (SUBROC); and the anti-aircraft missile (TERRIER BTN). Today the Navy only retains nuclear gravity bombs and the theater nuclear version of the long range cruise missile.[29]

The tactical naval nuclear weapons that the US Navy

currently maintains in storage neither provide adequate deterrence nor increased warfighting capability. Additionally, lack of a naval tactical nuclear strike capability does not equate to lack of need for a navy. If the US and the USSR both eliminated naval tactical nuclear weapons, the world would be a safer place and the US Navy would be in an even more dominant position compared to the Soviet Navy. Of course, elimination of both nations' non-SLBM nuclear weapons would require that concept so dreaded by the United States: "naval arms control."

[1]Damion Durrant and Joshua Handler, "Deep-Six B90 Bomb," Bulletin of Atomic Scientists, July 1990, p.20.

[2]Interview with ADM William J. Crowe, Former Chairman of the JCS, 25 July 1991.

[3]Terry Terriff, "Controlling Nuclear SLCM," Survival, January 1990, p.53.

[4]V. Nikitin, "Tomahawk: Unpredictable Consequences of a New Design," trans. US Naval Technical Intelligence Center, Morskoy Sbornik, No. 7/1989, p.99.

[5]Carlisle A. H. Trost, "The Sea Launched Cruise Missile," NATO's Sixteen Nations, September 1989, pp.68-69.

[6]US Department of Defense, Annual Report to the President and the Congress, January 1990.

[7]Donald C. F. Daniel, "Naval Power and European Security," Defense Analysis, December 1989, p.85.

[8]Strobe Talbott, "Why START Stopped," Foreign Affairs, Fall 1988, pp.62-64.

[9]Jane's Weapons Systems: 1990-91, (London: Jane's Information Group 1990), p.907.

[10]James McCoy, "Naval Arms Control: Ante Up," US Naval Institute Proceedings, September 1990, p.36.

[11]Nikitin, "Tomahawk", p.94.

[12]Linton F. Brooks and Franklin C. Miller, "Nuclear Weapons at Sea," US Naval Institute Proceedings, August 1988, p.43.

[13]National Academy of Sciences, Implications of Advancing Technology for Naval Operators in the Twenty First Century, (Navy 21), Volume I, (Washington: National Academy Press, 1988), p.53.

[14]Brooks and Miller, "Nuclear Weapons at Sea," p.43.

[15]Interview with LT John Schultz, USN, Former ASW Officer for US Destroyer Squadron 31 (Pacific Fleet ASW Squadron), 20 August 1991.

[16]Letter to the author from John F. Lehman, Former Secretary of the Navy, 8 August 1991.

[17]Schultz Interview, 20 August 1991.

[18]US Department of Defense, Report on Naval Arms Control, April 1991 p.8.

[19]Schultz Interview, 20 August 1991.

[20]Interview with CDR Kennith Williams, ASW Curriculum Officer, Naval Postgradate School, 5 August 1991.

[21]Interview with CDR Randall Waldrip, Former Maintenance Officer, Patrol Squadron 50 (VP-50), 30 July 1991.

[22]David S. Steigman, "Nuke Removal Signals Changes," Navy Times, 14 October 1991, p.14.

[23]Lynn interview, 5 August 1991.

[24]New York Times, 29 September 1991, p.5.

[25]Steven L. Reardon, History of the Office of the Secretary of Defense: The Formative Years: 1947-1950, (Washington: OSD Historical Office, 1984), p.543.

[26]Omar N. Bradley, A General's Life, (New York: Simon and Schuster, 1983), p.510.

[27]Steven E. Ambrose, Eisenhower: The President, (New York: Simon and Schuster, 1984), p.171.

[28]Doris M. Condit, History of the Officew of the Security of Defense: The Test of War 1950-1953, (Washington: OSD Historical Office, 1988), p.537.

[29]Micheal Pugh, "Nuclear Warship Visiting: Storms in Ports," The World Today, October 1989, p.49.

IV. NAVAL ARMS CONTROL

Naval arms control can be beneficial to both the United States and the Soviet Union. If the United States gives up all of its non-strategic naval nuclear weapons as part of a naval arms pact eliminating all tactical naval nuclear weapons, the US Navy's missions of sea control and power projection will not be adversely affected. If the Soviets eliminate their tactical naval nuclear weapons, they will lose much of their capability against carrier battle groups. However, in exchange, nuclear SLCMs and carrier based aircraft bombs will no longer threaten the Soviet landmass. This chapter will argue that signing an arms control agreement that trades away US nuclear aircraft bombs and SLCMs for Soviet tactical naval nuclear weapons, including land based nuclear antiship missiles, is beneficial to both nations and should be a goal of the US and USSR.

A. US POLICY AND HOW IT EVOLVED

Even before President Bush announced his arms reduction initiatives, the US goal in arms control was to "reduce the risk of war by working to a stable, predictable strategic relationship." Stability requires forces and policies such that neither party can gain by striking first. Predictability requires sufficient openness to prevent mispreception, miscalculation, and an inadvertent war.[1]

However, when considered in a strictly naval arena, the American view of stability includes the ability to protect vital sea lines of communication with European and Asian allies, and to defend American interests in the Third World. In fact, since the conclusion of the Second World War there have been over two hundred cases where American military units were deployed to troublespots. Eighty-five percent of these events were removed from the context of The NATO/Warsaw Pact confrontation, and eighty percent involved the use of naval forces.[2] The continued US presence in the Arabian Gulf requires extensive use of naval forces. This reliance on naval power was made clear in Secretary of Defense Carlucci's Moscow speech in July 1988 when he stated that cutting US naval capabilities would be like "asking the USSR to tear up its roads and railways; given our geopolitical circumstances neither of us could afford to cut these vital lifelines."[3]

To say that the US had been hostile to the concept of naval arms control would be a serious understatement. However, naval arms control negotiations can be beneficial to the US Navy if properly addressed. In the past, naval arms control has been mishandled and traditional US policy reflects a deep distrust of any maritime arms control initiatives.

Agreements that would prevent the US Navy from operating on a global scale would seriously impinge upon American

national security. Whether US naval strength was limited by geographic restrictions or force limitations, the reduction in US naval presence around the world carries risks. In the post-Cold War world where threats are both more diffuse and difficult to discern the United States must be cautious about placing constraints on its naval forces, the most usable and flexible component of national power. This is one reason that the US has so strongly resisted formal naval arms control.[4] A second reason is that the US Navy has a long history of being put at a disadvantage by arms control agreements. Since the 1921-22 Washington Conference on the Limitation of Armaments, with the exception of the Incidents at Sea Agreement, the US Navy has had nothing but trouble with naval arms control. While the Washington Conference theoretically made the US Navy the equal of Britain's Royal Navy and superior to the Japanese Imperial Navy, other factors would adversely affect US naval strength. First among these was the fact that the two ocean US Navy would have to concentrate in either the Atlantic to gain parity with Britain or in the Pacific to have superiority over Japan. Thus, in the post World War I drive to obtain perpetual peace, arms negotiators stressed an agreement over the ability to fight a two ocean war. Captain Dudley K. Knox wrote that with the Washington Treaty limits "went all chance of defending the Philippines and providing a military sanction for American policy."[5] The second factor

resulting from the Washington Conference was the reluctance of the President to request, and the Congress to fund weapons systems that are, or may become the subject of arms reduction talks. This resulted in what critics charged was unilateral disarmament. Naval construction was greatly curtailed by President Hoover who hoped for success in further arms reductions talks. Even in the midst of the Manchurian Crisis of 1931-32 he refused to increase naval spending while hoping for another round of naval arms talks. This prompted the Navy League to blast what it charged were "Hoover's efforts at every turn to restrict, to reduce, to starve the Navy."[6]

The US Navy still views arms control with suspicion. In May 1990 the Chief of Naval Operations, Admiral Trost told a Senate subcommittee that "the recent history of naval arms control does not command itself to emulation. That "twice in this century coalitions of maritime nations have been caught unprepared" for war against powers "who were able to interdict the sea lines of communication. The price of that unpreparedness, resulting in part from negotiated naval restrictions was paid in blood."[7] The Navy is concerned that once naval arms talks become a possibility, the urge to strike an agreement, and the desire to save money on systems that may be the subject of negotiation will produce a navy that cannot meet its worldwide commitments. Precedent for the fear that "arms control for arms control's sake" will

overcome the national interest can be seen in the SALT II Treaty, which, in the words of Paul Nitze, exemplified "a tendency to subordinate security policies to hopes of achieving arms control, rather than to shaping arms control policies to our security needs."[8] Surely the USSR would like to see the US Navy give up all long range cruise missiles, conventional or nuclear, but this would certainly not be in the security interests of the United States considering the utility of conventional SLCMs in the Gulf War.

The US Navy also fears spending cutbacks, in which savings are taken before a naval arms agreement is reached. This could leave the US Navy unable to accomplish its assigned missions. In 1978, in hopes of reaching an agreement on the Naval Arms Limitation talks Secretary of Defense Harold Brown ordered Chief of Naval Operations Admiral James Holloway to stop using the term "maritime superiority." At the same time Secretary Brown suggested the replacement of large aircraft carriers with a smaller, cheaper, less capable version called a CVV, and a near halfing of Marine Corps strength.[9]

The official position of the United States on negotiating away tactical naval nuclear weapons had been that banning these weapons "would not enhance US security" and that even discussing such a ban with the Soviets "would not be in our [the US] interest." Citing verification

uncertainties, the Report on Naval Arms Control goes on to say: "A ban [on naval tactical nuclear weapons] would therefore simply divest the US of capabilities without providing confidence that the Soviet Union would be similarly divested."[10]

B. THE SOVIET VIEW OF ARMS CONTROL AT SEA

Prior to the proposals of Presidents Bush and Gorbachev, Soviet and American goals for arms control were often quite different. While the US generally saw naval arms control as detrimental, the Soviets have viewed naval arms control as beneficial. Since President Gorbachev first mentioned naval force limitations at Vladivostok in July 1986, Soviet proposals for limiting naval arms were primarily designed to prevent major navies from having access to all international waters. Though several of these offers were probably designed for the public relations benefit, a chronological listing of such proposals (see Appendix) demonstrates a propensity for geographic naval limitations. In reality, these proposals would have had the practical effect of extending traditional Soviet naval defensive zones outward by limiting the US Navy's freedom of movement.[11] Until recently it could be argued that the overall Soviet naval arms control goal was to move the threat as far away from the Soviet coast as possible, thereby reducing the chance of a surprise attack.

No matter where Soviet-American relations are headed in the coming years, the ongoing goal of the leadership of the USSR will be to maintain a secure maritime defensive perimeter. The Soviets will not engage in naval arms control if arms control reduces this perimeter.[12]

In support of this position, the Soviets had suggested conventional force limitation proposals that ranged from restrictions on warship tonnage and endurance to reduce the reach of naval forces, to cutting submarine forces. Based on the assumption that if submarines are limited then antisubmarine forces will be reduced, and an overall naval build-down will follow.[13] The flaw in those conventional force restrictions was that they often failed to take into account the differing missions of the Soviet and American navies. Even US proponents of naval arms control such as Senator Edward Kennedy saw danger in drastic cutbacks in general purpose naval forces. The senator told Soviet Marshal Sergey Akhromeyev in May 1990 that the US "intends to protect the longstanding ability of our navy to control the seas for the purpose of free trade in peacetime, and for the resupply of our allies in time of conflict."[14]

Though their efforts to establish a geographic or conventional arms control regime have proven unsuccessful, the Soviets now see even more reason for naval arms control then they have in the past. The reason for their heightened interest in naval arms control is the nuclear Tomahawk land

attack cruise missile (TLAM/N). After failing to include a legally binding limit on TLAM/Ns in the START Treaty, the Soviets suggested that all nuclear SLCMs and nuclear antiship ALCMs be banned.[14] Articles have appeared in Soviet journals charging that nuclear Tomahawks are "first strike weapons" and that the consequences of deploying them are "troubling" for superpower relations.[15]

The ability of cruise missiles to strike with little warning and without manned aircraft support was demonstrated repeatedly during the Gulf War. To Soviet eyes, the relatively limited number of US SLCMs, coupled with the presumably high attrition rate of US naval aircraft involved in attacking Soviet land targets, make the potential use of TLAM/N a major threat. Soviet military planners believe that to conserve planes and insure destruction of key targets in the USSR, the US will resort to nuclear SLCM strikes sooner rather than later in a wartime situation.[16] As a result of this situation, the Soviet President Gorbachev has proposed that the USSR eliminate all their tactical naval nuclear weapons, including SLCMs and antiship ALCMs, if the US does the same.[17]

C. THE SEARCH FOR A "NON-ZERO SUM"

Acceptance of President Gorbachev's proposal to eliminate all non-strategic naval nuclear weapons can be the answer to the "zero-sum" problem of arms control. With the

Soviet goal in naval arms control of reducing the threat to it from the seas, and the American goal of preserving its right to defend worldwide interests, a naval arms limitation agreement between them would seem a faint hope. Indeed, a zero-sum situation where a gain for one side equals a loss for the other seems preordained.

The solution to the dilemma of zero-sum naval arms control can be found in the guiding principles of NATO's "Comprehensive Concept" for negotiations with the Warsaw Pact which were adopted in May 1989. This concept states that arms control should provide both security and stability. Security, in that arms control measures should increase the security of the involved parties and that each nation has a right to a credible and effective defense. Stability, in that arms control should enhance international stability by removing the most threatening capabilities which would allow one side to gain a significant advantage by launching a surprise attack.[18]

To implement the above principles, both the American and Soviet leadership will have to be more flexible by allowing for the defensive requirements of the other side. The US Navy's reluctance to even consider naval arms control is not a tenable position. For the economic, international access and political reasons discussed in Chapter V, America must be willing to talk. The theory that arms control is good on land but not at sea is unrealistic, and the ever increasing

cost of modern weapon systems make a naval arms race an impractical proposition.[19] The Soviets recognize that American naval missions are different from theirs and that negotiations need not center on equal warship tonnage limitations as did the format adopted at the 1922 Washington Naval Conference. Sergey Rogov of the USSR's Institute of the USA and Canada maintains that in the future the US will need to maintain a larger navy while the USSR will maintain larger ground forces. He continues by stating that symmetry is not the ultimate goal of arms control.[20] In fact, arms control needs to change with the world situation. Today the primary cause of nuclear war is not likely to be superpower conflict where the threat to use nuclear arms can serve as a deterrent to unprovoked attack. Rather, the major threat today of nuclear war occurs in the escalation of regional conflicts, such as the Gulf War, or internal strife in the Soviet Union where the mere availibility of nuclear weapons could lead to a nuclear first strike against an adversary.[21]

On the surface, negotiating a naval nuclear arms control agreement would seem a difficult task. After all, in the area of theater/tactical naval nuclear weapons, arms controllers must deal with asymmetrical naval missions and nuclear systems. The nuclear weapons in US and Soviet naval arsenals are truly asymmetrical; while the US has decommissioned most of its sea based tactical nuclear

weapons,[22] the USSR seems to rely on a wide variety of such systems with a nuclear capability, including multiple types of antiship cruise missiles and torpedoes with a nuclear capability. Though in development since the late 1970s, the Soviets have only begun to deploy operationally sea based theater land attack nuclear cruise missiles.[23] In short, Soviet sea based nuclear weapons are primarily tactical antiship or antisubmarine weapons while American sea based weapons are primarily theater strike crusie missiles, though carrier based bombs are still in the inventory. Can two such symmetrical arsenals be tied together in a realistic arms control agreement as proposed by President Gorbachev?

The answer is yes, they can be tied together, not because the arsenals are different but because the missions of the two fleets are different. While the Americans are concerned with sea control and power projection from a position of naval superiority, the Soviets view sea based nuclear weapons as an equalizing factor allowing them to effectively perform both their homeland defense and sea denial missions. Furthermore, the major objections that the US has to naval nuclear arms control are verification difficulties, the fear that the Soviets will cheat on an agreement. Unfortunately, the US and USSR have already tacitly entered into an agreement limiting tactical naval nuclear weapons that has no verification proceedures

whatsoever. In effect, the US has already accepted the naval arms control treaty that it has historically opposed, one that will bind the United States but not allow verification of Soviet compliance. This is not a good situation for the United States. As soon as possible the US should seek to enter into negotiations with the USSR for a verifiable treaty banning naval tactical nuclear weapons.

Negotiating away tactical naval nuclear weapons would mean that the US would lose its TLAM/N arsenal. TLAM/Ns would no longer be part of the strategic reserve force. Nor would nuclear Tomahawks be available as a theater countervailing force. Nuclear deterrence at sea would instead depend upon US based nuclear Air Force ALCMs or strategic systems. As would escalation dominance in a third world conflict, if conventional weapons alone are not sufficient. Elimination of naval tactical nuclear weapons also means that US nuclear depth bombs will not be available to hold the Soviet submarine fleet at risk. However, as discussed earlier, the US Navy conducts little training on nuclear ASW tactics and therefore existing US nuclear ASW weapons do not pose a credible threat to Soviet submarines. Elimination of TLAM/Ns and nuclear aircraft bombs from the US inventory will not adversely affect the US Navy's ability to fulfill its sea control and power projection missions.

Negotiating away tactical naval nuclear weapons will have a greater effect on some Soviet naval missions. The

loss of these weapons will make it harder for the Soviets to conduct anticarrier warfare. The removal of nuclear torpedos and SLCMs from the USSR's naval forces will require the use of multiple conventional weapons to heavily damage an aircraft carrier. Soviet targeting procedures will have to improve to compensate for the much smaller destruction radius of conventional weapons. Additionally, a single submarine will no longer be able to destroy an entire convoy, harbor, or anchorage with a nuclear tipped torpedo. Therefore, the Soviet sea denial mission will also become more difficult.

While the elimination of Soviet tactical naval nuclear weapons will complicate their anticarier and sea denial missions, it will enhance the Soviet's primary naval missions of homeland defense and support of the ground forces. Without TLAM/N or carrier based aircraft nuclear bombs the US Navy will not be as great a menace to the USSR. Therefore, trading away naval nuclear weapons will enhance the Soviet Navy's ability to protect their homeland and support the Red Army.

In summation, elimination of tactical naval nuclear weapons means that the US Navy will give up its ability to conduct nuclear strike warfare in exchange for greater survivability of US carriers and their battle groups. This will leave the US Navy much stronger relative to the Soviet Navy than before a naval arms control treaty. Banning all

non-strategic naval nuclear weapons, including land based antiship missiles, provides an opportunity for the United States and USSR to act on naval arms control in a tangible and verifiable way. While at the same time reducing the nuclear threat to the USSR without hindering the United States' ability to maintain global lines of communication with its allies. Eliminating tactical naval nuclear weapons provides a non-zero sum answer that allows each nation to benefit from naval arms control, while at the same time strengthening the US Navy vis-a-vis the Soviets.

[1]US Department of State, Speech of Secretary Baker 23 October 1989 at San Francisco, Bureau of Public Affairs Bulletin, p.3.

[2]Benjamin Schemmer, "Interview with Senator John McCain," Armed Forces Journal International, January 1990, p.46.

[3]"Soviet Proposals for Arms Control at Sea," RUSI News Brief, January 1989, p.6.

[4]US Department of Defense, Report on Naval Arms Control, 1991, p.36.

[5]Vincent Davis, The Admirals Lobby, (Chapel Hill: University of North Carolina Press, 1967), p.141.

[6]Philip T. Rosen, "The Treaty Navy," In Peace and War, ed. Kenneth J. Hagan, (London: Greenwood Press, 1978), pp.231-232.

[7]US Congress, Senate, Committee on Armed Services (SASC), Approaches to Naval Arms Control, Hearings before the Subcommittee on Projection Forces and Regional Defense, 101st Cong., 2nd sess., 1990, pp.65-66.

[8]Paul H. Nitze, From Hiroshina to Glasnost, (New York: Grove Wiedenfeld, 1989), p.360.

[9]John F. Lehman, Command of the Seas (New York: Scribners', 1988), p.118.

[10]US Department of Defense (USDOD), Report on Naval Arms Control, April 1991, p.10.

[11]Gerry S. Thomas, "The Gorbachev Gambit," Naval Forces, November 1989, pp.21-23.

[12]SASC, Approaches to Naval Arms Control, pp.14-16.

[13]James Eberle, "Naval Arms Control: Where Do We Go From Here? (Part II)," Naval Forces, Vol X/V 1989, pp.72-73.

[14]SASC, Approaches to Naval Arms Control, pp.17-18.

[15]V. Nikitin, "Tomahawk, Unpredictable Consequences of a New Danger," trans. US Naval Technical Intelligence Center, Morskoy Sbornik, No.7/89, p.99.

[16]Ibid., pp.96-97.

[17]New York Times, 6 October 1991, p.1.

[18]Edward Fursdon, "Arms Control: Optimism but Major Difficulties Remain," Pacific Defense Reporter, December 1989, p.85.

[19]James Eberle, "Naval Arms Control: Where Do We Go From Here? (Part I)," Naval Forces, Vol X/IV 1989, p.59.

[20]Sergey Rogov, "Detente is not Enough," Foreign Policy, Spring 1989, pp.94-95.

[21]Matthew Bunn, "Arms Control's Enduring Worth," Foreign Policy, Summer 1990, p.158.

[22]Joshua Handler and William M. Arkin, Nuclear Warships and Naval Nuclear Weapons 1990, (Washington DC: Greenpeace, 1990), p.42.

[23]Jan Breemer, Soviet Submarines: Design, Development & Tactics, (London: Jane's Information Group, 1989), pp.154-155.

V. BEYOND DETERRENCE AND WARFIGHTING

Removing non-strategic naval nuclear weapons from ships and submarines, but continuing to maintain these weapons in the inventory, will do little to address two historic problems facing the Unites States. The debate over naval nuclear weapons normally focuses on their ability to deter or fight a nuclear war at sea. However, two additional factors must always be considered when reviewing tactical nuclear weapons at sea: cost and international access restrictions caused by their presence or possible presence. As long as they exist, these weapons will continue to cost the United States a great deal in both economic terms and operational freedom. If the United States eliminates naval tactical nuclear weapons, not merely place them in storage, it would save itself considerable sums of both treasure and international political capital. Additionally, if the President seeks to maintain these weapons in storage for an extended period without entering into negotiations to eliminate these weapons, a bitter debate will likely ensue in Congress over continued funding of these systems.

A. THE ECONOMIC COSTS OF NUCLEAR WEAPONS

Naval tactical nuclear weapons are expensive. The US Navy's current stockpile of non-SLBM nuclear weapons cost between $5-$10 billion to procure. Of more concern in the

current austere defense fiscal environment is the fact that the annual cost to the Untied States to maintain, secure, store, and train on tactical nuclear weapons is approximately $500 million.[1] Over one-half of one percent of the Navy's total annual budget is spent supporting nuclear SLCMs and nuclear bombs. This is a huge sum at a time when Secretary of Defense Richard Cheney says, "I'd love to keep the battleships in commission but they just cost too much to operate."[2] Battleships cost $63 million a year to operate.[3] In other words, the entire operating budget of all the Iowa class battleships is roughly equal to one-half of the yearly cost of maintaining non-SLBM naval nuclear weapons at sea.

The Navy's $500 million per year cost of tactical nuclear systems is not an obvious, easy to find amount. The only clear cut figures are associated with procurement costs. Tomahawk missiles cost about $1.5 million apiece, so the total cost of a programmed purchase can readily be established. However, the maintenance, security, and training costs are widely dispersed among many different commands, and establishing an accurate picture of the true cost of tactical nuclear weapons within the Navy is difficult. Additionally, as with any nuclear system, warhead design and production costs are mostly borne by the Department of Energy (DOE). In fact, antinuclear advocates charge that the Navy "hides" weapon costs by dumping

development charges on the DOE and thereby getting a "free" weapon which does not impact on the Navy budget.[4]

Within the Navy budget, costs associated with tactical nuclear weapons are obscured by two factors. The first is that "no one sees all the pots of money" that fund a command working with nuclear weapons except the command itself. This is generally true of most weapons programs, because nearly every command has multiple budget sources within the OPNAV organization.[5] Beyond the separate funding, another obstacle confronts anyone reviewing the Navy's tactical nuclear weapons budget. In times of declining funding, organizations are reluctant to reveal the size of their budget for fear of exposing themselves to closer examination and further cutbacks. The Budget Officer of OP-09N, the organization which funds physical security systems for nuclear weapons calls this "bureaucratic classification." This occurs when an organization declines to reveal "proprietary budget information", though the information is not classified from a security standpoint.[6]

Even with split funding sources and "bureaucratic classification," information is available on how the Navy spends money to support its tactical nuclear weapons arsenal. Preliminary figures provided by an analyst in the Congressional Budget Office (CBO) show that the US Navy and DOE require $250-500 million per year to sustain procurement sufficient to maintain the multi-billion dollar tactical

nuclear weapons inventory. This amount includes warhead development, manufacture, and repair.[7] The budget of just the small Naval Ordinance Station Indian Head detachment at McAllister, Oklahoma exceeds $10 million annually.[8] Apart from the procurement spending, the Navy spends $250-500 million in annual operations and support funds for tactical nuclear weapons related maintenance and security.[9] Included within this amount is over $50 million in annual direct security costs[10] and $10 million in nuclear safety training costs.[11]

Even with President Bush's nuclear weapon reduction initiative, the above mentioned costs will remain. Secretary of Defense Cheney told a news conference following the President's announcement that the "Navy will continue to train and operate" as if the nuclear SLCMs and aircraft bombs are still onboard "in case they are needed."[12] In order to "train and operate" as if these weapons are still onboard operational units, the US Navy will have to continue spending roughly the same amount it does now on these systems.

The $500 million or more a year the US pays to maintain naval tactical nuclear weapons is too much to spend on weapons with so little practical use. Negotiating a actual ban on these weapons will be a significant benefit to a financially strapped naval establishment. A further consideration should be that existing nuclear SLCMs be

converted to conventional weapons within a specified period following the signing of a treaty banning these weapons. While conversion to conventional weapons would cost more than destroying them in a manner similar to the destruction of INF Treaty banned GLCMs, it would be cost effective for the United States. Even if conversion cost $500 thousand per missile, it still is only a third of the price of a completely new conventional SLCM. Furthermore, it would bolster the Navy's striking ability. If converted, 400 or so remanufactured nuclear SLCMs for $200 million dollars would greatly increase striking flexibility, especially considering that 250 SLCMs were fired into Iraq in the first week of the Gulf War.[13]

If the US negotiates away all naval tactical nuclear weapons, not just places then in storage, it would save at least $500 million a year. If TLAM/Ns were converted it could increase its conventional SLCM inventory by about 400. Paying for the conversion out of the first year's savings would still leave a savings of about $300 million. True elimination of naval tactical nuclear weapons is an economically, as well as militarily sound concept that will also benefit US international relations.

B. TO CONFIRM OR DENY

If the United States negotiates a ban on tactical naval nuclear weapons a politically sensitive issue that has

complicated US naval operations for years will be eliminated. The President's nuclear weapons reduction initiative of 27 September 1991 would seem to resolve the question of whether or not US Navy warships carry nuclear weapons. However, merely placing naval tactical nuclear weapons in storage and not deploying them onboard ships and submarines "under normal circumstances"[14] will create problems. The official policy of the United States has been to "neither confirm or deny" (NCND) the presence of nuclear weapons on any ship, aircraft or military base. With its worldwide operations, the US Navy is the military service most affected by NCND. The Air Force's nuclear strategic bombers operate from within the US. Air Force aircraft that are dual-capable (can carry either nuclear or conventional ordinance) do operate outside of US territory. However, if the host government objects to the aircraft's ability to deliver nuclear weapons the US government may declare that nuclear weapons will not be carried during certain exercises.[15] Air Force nuclear weapons in Europe are stored at fixed sites with the support of the host NATO governments. Though protests occur, NATO has seen nuclear weapons in Europe as the lynchpin of the "flexible response" policy and continues to support their limited presence.[16] Only Navy units routinely operate worldwide while carrying nuclear weapons. As such, the US Navy is affected to a far greater extent than the other services by the official policy of NCND.

The policy of NCND is beneficial in that it allows all service members, down to the lowest ranks, to give a standard answer to a politically sensitive question. Unfortunately, the very success of this policy has had the long term effect of limiting the access of US naval forces in strategically important areas of the globe. This is because there is growing worldwide opposition to nuclear weapons. Nuclear weapons have over the years assumed a symbolic importance so powerful that various governments refuse to grant clearance for port visits to ships that can be armed with such weapons. Since US policy is to neither confirm or deny the presence of nuclear weapons, all nuclear capable ships are banned by these nations whether nuclear armed or not. The most famous case of this occurred in 1985 when New Zealand's Prime Minister David Lange denied a port visit request for USS Buchanan (DDG-14) because the destroyer could carry nuclear weapons and the United States invoked its NCND policy. As a result of the port visit refusal, the United States formally suspended its thirty-five year old defense alliance with New Zealand. Several other nations including Iceland have a similar "no nukes" policy. Denmark, whose national policy bans nuclear weapons from its territory, finesses the issue by assuming, but not requiring confirmation, that all visiting ships are in compliance with Danish policy.[17] Japan too, despite an official position against nuclear weapons, winks at the NCND

policy. In 1965 a A-3E Skywarrior aircraft onboard USS Ticonderoga (CV-44) carrying a nuclear strike bomb rolled overboard. The carrier was enroute to Yokosuka, Japan. When the accident was publicly revealed in 1985 it caused a furor, but the Japanese government did not alter its defense arrangement with the United States.[18] While the impact on fleet operations of the so called "nuclear allergy" has been relatively limited to date, this may not always be the case.

Those countries with the most successful antinuclear activists will have additional problems tolerating the ambiguities created by the American NCND policy. Increasingly, antinuclear movements present the argument that the presence of such weapons makes the host country a nuclear target.[19] NCND is seen by some as a way to stifle debate about nuclear weapons. In 1988 Morton H. Halperin of the Nixon and Johnson Administrations told the New York Times that NCND is really designed for the "purpose of preventing a debate [about the presence of nuclear weapons] in another democratic society."[20] Mr. Halperin's case is overstated in that he fails to mention that NCND also provides an extra level of nuclear safeguards by denying any group bent on nuclear terrorism critical information. Yet there is no question that NCND is an anathema to many nations. In the words of the Swedish Ambassador to the United Nations, NCND is "a confidence blocking measure."[21]

Unfortunately, the newly introduced concept of removing nuclear weapons from operational units and placing them in storage will not resolve the issue of NCND. In the event of a crisis, is the Untied States going to admit that it believes it necessary to rearm its fleet with nuclear weapons? It seems doubtful that after announcing the removal and storage of naval tactical nuclear weapons that the US Navy would benefit from declaring their return. Even if the United States was engaged in a situation so dangerous that the national leadership felt a need for a nuclear option, the costs outweigh the benefits in reintroducing tactical naval nuclear weapons. The units declared to be nuclear armed, or perhaps even the entire US Navy would surely be banned from certain ports. Even some allies would probably question the US wisdom in such an obvious escalation of the crisis. A non-strategic nuclear option could be more quietly and cheaply maintained by using US based Air Force planes armed with cruise missiles than by bringing naval weapons out of storage.

If the United States was to negotiate away all non-SLBM naval nuclear weapons an attractive side benefit is that the politically sensitive issue of neither confirm nor deny would finally cease to exist. The US Navy could announce that all units except for ballistic missile submarines are and will remain nuclear weapons free. The US Navy can thus free itself from an issue that will not go away; and if

these weapons were recalled to service, this issue would interfere with US relations around the world. Complete elimination of tactical naval nuclear weapons would benefit the United States both economically and internationally.

C. POLITICS AND NAVAL ARMS CONTROL

Apart from the international access and budgetary reasons for accepting naval arms control, there is another compelling reason for doing naval arms control now. The reason is politics. If the United States does not take the lead in forming a naval arms control agenda it may be forced to follow an unpalatable agenda derived from a political desire to "do good" rather than from international "real politik." More bluntly, the US Navy needs to do arms control before arms control "does it" to the Navy Even President Bush's proposals do not go far enough. The United States needs to accept President Gorbachev's call for total elimination of naval tactical nuclear weapons.

Since 1985 the USSR has been seriously advocating naval arms control. Almost certainly this position is a reflection of what the Soviets perceive as a growing disparity between their naval capability and those of the Western allies. The perception was fostered by Western success in the Falklands War, the defense of the Arabian Gulf sealanes, and recently in the Gulf War. In each case, western navies demonstrated the ability and fortitude to

operate offensively at great distances from home waters. The Soviets saw that their naval future looked dark and sought relief in naval arms control. Seeking to entice the United States into an arms control scenario similar to the failed Indian Ocean Talks of 1977-78, the USSR made a string of arms control proposals (see Appendix) that would have limited the freedom of the US Navy to operate globally. The United States deflected or ignored these proposals, but the USSR still pushed for naval arms control. The day the START Treaty was signed in Moscow, Soviet spokesman Vitaly Ignatenco told a press conference that the next phase of arms talks should include tactical nuclear weapons, naval forces, and space systems.[22] In the post-coup Soviet Union, prior to the Bush initiative, both Union President Gorbachev and Russian President Boris Yeltsin repeatedly told interviewers of the need for additional arms control initiatives.[23] The new Soviet Union will be more reasonable and less threatening to the United States and its allies. So long as the USSR seems friendlier, it will be seen as an attractive partner in arms control negotiations with the United States.

In contrast, the US Navy has traditionally been able to control the debate about naval arms control. Using the "just say no" to arms control method, the Navy has pushed naval arms control into the background. The August 1991 White House publication, The National Security Strategy of

the United States, rejects naval arms control that would limit the US ability to counter threats to its vital interests.[24] The less recent Annual Report to Congress by the Arms Control and Disarmament Agency (ACDA) fails to discuss naval arms control issues at all.[25] Serious consideration of naval arms control can not be avoided indefinitely. Recent hearings in Congress confirm that naval arms control is a rising issue.

As part of the Fiscal Year 1991 Defense Authorization Act the Senate Armed Services Committee directed the Department of Defense (DOD), in consultation with the Arms Central and Disarmament Agency (ACADA), to examine naval arms control in three areas: tactical nuclear weapons; limits on nuclear powered attack submarines; and confidence building measures.[26] Additionally, two days of hearings were held by the Armed Services Committee's Subcommittee on Projection Forces and Regional Defense on "Approaches to Naval Arms Control." The witnesses at these hearings included Marshal Sergey Akhromeyev, military advisor to the President of the USSR, as well as the Chief of Naval Operations and the director of ACADA.[27]

Senator Edward Kennedy (D-MA) opened the hearings by saying "the subcommittee will consider an important area of arms control that should be on the agenda but has not made it there so far: the possibility of negotiating limits on naval forces."[28] Other senators view the subject with

more caution; Senator John Warner (R-VA) stated that naval arms control has "not proven to be effective in the past."[29] Senator Strom Thurmond (R-SC) is more outspoken, saying: "the elimination of nuclear SLCMs would be detrimental to our national security."[30] Even so, President Bush's proposals for unilateral cuts won wide acceptance. American arms control experts with widely divergent views hailed the US proposal. Both Richard Perle, a former Assistant Secretary of Defense in the Reagan Administration[31] and William Arkin of Greenpeace[32] agreed that removing tactical naval nuclear weapons from fleet units is a good idea.

Just as removing but not destroying naval tactical nuclear weapons is not enough in a military sense, nor is it in a political one. With the increasing clamor for a peace dividend, it seems logical that if US tactical naval nuclear weapons are maintained in storage for any length of time without entering into negotiations with the Soviets, that Congress will remove all funding for them from the defense budget. This could leave the United States in a position with no naval tactical nuclear weapons while the Soviet weapons are still available in storage. Clearly this would be a less than ideal situation. However, in the current climate where the Direction of the Office of Management and Budget, Richard Darmin, talks about the possibility of reopening the 1990 Budget Agreement such action cannot be discounted.[33]

The United States must take up President Gorbachev's challenge to negotiate a ban on naval tactical nuclear weapons and strive for an equitable, verifiable treaty banning these weapons. No less an expert than Ambassador Paul Nitze believes that the United States must negotiate on this issue, sooner rather than later.[34] In taking up the Gorbachev proposal, the United States can save money, preserve its international access, and avoid a bruising internal political debate. Of course one issue in naval arms control remains to be addressed before that can happen. That issue is verification.

[1]Interview with Analyst, Congressional Budget Office (CBO) on 22 August 1991.

[2]Speech by Secretary of Defense Richard Cheney at Monterey, CA, 4 April 1991.

[3]Speech by VADM Robert K. Kihune, Assistant Chief of Naval Operations, Surface Warfare, Monterey, CA, 25 July 1991.

[4]Danian Durrant and Joshua Handler, "Deep-Six B90 Bomb," Bulletin of Atomic Scientists, June 1990, p.20.

[5]Interview with CDR Thomas Schaffer, OP-392, 21 July 1991.

[6]Interview with Barbara McClellan, Budget Officer, OP-09N, 29 August 1991.

[7]Letter to author from Congressional Budget Office Analyst, 28 August 1991.

[8]Interview with Robert Williams, Naval Ordinance Station Indian Head Detachment, McAlister, OK, 21 August 1991.

[9]CBO Analyst letter, 28 August 1991.

[10]McClellan interview, 29 August 1991.

[11]Interview with Eric Alchowa, OP-410D, 20 August 1991.

[12]New York Times, 29 September 1991, p.6.

[13]Stanley W. Kardebo, "US Fires Over 25% of its Land Attack Tomahawks in first Week of War," Aviation Week and Space Technology, 28 January 1991, p.29.

[14]New York Times, 28 Spetember 1991, p.4.

[15]New York Times, 17 October 1982, p.A4.

[16]Paul H. Nitze, From Hiroshima to Glasnost (New York: Grove Wedenfield, 1989), p.367.

[17]New York Times, 8 June 1988, p.A14.

[18]William M. Arkin and Joshua M. Handler, "Nuclear Disasters at Sea, Then and Now," Bulletin of Atomic Scientists, July/August 1989, pp.21-22.

[19]Nicholas L. Flacco, "Whether to Confirm or Deny," US Naval Institute Proceedings, January 1990, p.30.

[20]New York Times, 8 May 1988, p.E3.

[21]William M. Arkin, The Nuclear Arms Race at Sea (Washington: Greenpeace, 1987), p.30.

[22]Moscow press conference on CNN-TV, 17 July 1991.

[23]"Town Meeting," ABC-TV, 5 September 1991,

[24]White House, National Security Strategy of the United States, August 1991, p.14.

[25]USACADA Annual Report to Congress: 1990 February 1991,

[26]USDOD, Report on Naval Arms Control, 1991.

[27]SASC "Approaches to Naval Arms Control," p.III.

[28]Ibid. p.1.

[29]Wiliam Matthews, "Soviet: US Must Discuss Naval Arms Cuts," Navy Times, 21 May 1990, p.24.

[30]Letter to author from Senator Strom Thurmond, 16 September 1991.

[31]New York Times, 29 September 1991, p.7.

[32]Newsweek, 7 October 1991, pp.24-25.

[33]New York Times, 7 October 1991, p.C10.

[34]Letter to author from Ambassador Paul H. Nitze, Former START and INF Chief Negotiator, 4 June 1991.

VI. VERIFICATION ISSUES

The roadblock to denuclearizing the US and Soviet tactical naval inventories is the same problem that plagues all arms control negotiations: verification. President Bush's initiative contains no provisions for verification. In fact, since both the US and USSR have announced that they are withdrawing tactical naval nuclear weapons from operational units, a situation now exists were both sides have tacitly agreed to a naval arms control regime that does not include verification of compliance. This situation can be corrected by agreeing to an intrusive verification regime.

A. AS DIFFICULT AS OPPONENTS MAKE IT

For years the US Navy has used verification as the club to beat down any talk of naval arms control. Originally, the United States was a proponent of intrusive inspections as the only way to monitor a naval arms control agreement. This US policy ran counter to the Soviet's steadfast refusal to permit onboard inspections. After Mikhail Gorbachev became the Soviet leader, the USSR's position reversed, with the Soviets advocating intrusive verification. About the same time the US position also changed, so once again the superpowers were at opposite ends of the verification spectrum.[1]

As President Bush's initiative contains nothing on naval arms control verification issues, the current US position is that "intrusive verification measures would expose US SLCM programs to hostile intelligence gathering and to the risk of technology transfer." Furthermore, effective verification "would not be possible" because tactical naval nuclear weapons could be hidden somewhere in the USSR even if a total ban on them was negotiated.[2] Both of these points; that intrusive verification could expose US secrets to hostile intelligence; and that it is always possible to cheat on an arms control pact are valid. However, neither concern is a strong enough reason not to enter into a naval arms treaty.

Intrusive verification includes onsite inspection of missile production factories, storage facilities, and airfields, as well as onboard inspections of ships and submarines. Intrusive verification is the only way to insure a particular naval unit or facility does not contain nuclear weapons. Both nuclear physicist Mark Rowland of the Lawrence Livermore National Laboratory[3] and Strobe Talbot, a noted author on arms control issues, agree that intrusive inspections are the only way to provide effective verification.[4]

Two major concerns are expressed by those who oppose an intrusive verification regime. The first is that critical nuclear weapons design information would be compromised. The

second is that warship construction methods, quieting techniques, or operating schedules would be revealed.

In 1989, a team funded through the National Resources Defense Council (NRDC), an organization that strongly opposes nuclear weapons, inspected a SLCM onboard the Soviet cruiser Slava. The NRDC team took measurements on a purported nuclear weapon. The results, reported in the journal Science, demonstrated that a variety of detection devices could determine the presence of nuclear material out to a distance of several meters. One unit, a high-purity germanium detector produced gamma-ray spectrums of the nuclear material inspected. There is concern that such spectrum anlysis of a warhead could be used to reverse engineer the nuclear weapon.[5] However, less sophisticated instruments exist that could give binary (yes/no) indications of the presence of nuclear material without producing the gamma-ray spectrum. Therefore, to insure the security of weapons design only certain detection devices would be allowed as part of an intrusive verification regime. This is possible because in verifying a total ban on tactical naval nuclear weapons the presence or absence of any nuclear material is the issue, not how much material, how many weapons, or their explosive yield.

The second area of concern in intrusive verification is that in inspecting ships or submarines, other critical information such as naval construction techniques, nuclear

power plant design, or vessel interior layouts will be revealed. The basis of this fear is that intrusive verification would require inspecting the entire unit, not just the weapons spaces to be effective. This is the case because it is possible that in the event of an inspection a nuclear weapon could conceivably be removed from its delivery system or magazine and hidden anywhere on the ship or station. As a result of wide ranging inspections designed to preclude cheating, verification teams would gain classified knowledge of the US Navy. The weakness in this argument is that the vast majority of the knowledge that inspectors could potentially gain is already available.

US warships routinely grant tours to various groups, including foreign naval officers. Additionally, periodic "general visiting" of surface ships during port visits is open to anyone willing to wait for a tour. These tours often include the engineering control stations of conventionally powered units, as well as weapons control stations.[6] Tours are also given of Trident SLBM submarines at Bangor, Washington and Kings Bay, Georgia. The only "off limits" areas during these tours are the radio room and the nuclear propulsion plant. Other parts of the submarine, including the torpedo room, the launch control station, and the SLBM missile compartment are part of the tour.[7] In accordance with US Navy instructions, only US citizens are allowed to tour submarines.[8] When a group

requests a submarine tour the group leader declares that all members of the group are US citizens. Then the base Public Affairs Office compares the names of the tour group's members with a "barred names list" derived from local, state and federal law enforcement agencies. Factual verification of US citizenship is not required, only the word of the group leader.[9] Tours are even granted for antinuclear activists such as Joshua Handler of Greenpeace, who recently toured a US attack submarine.[10]

It is apparent that most compartments in the US Navy's surface ships and submarines are not classified in and of themselves. Therefore, these spaces could be visited by arms control verification teams with little chance of compromising classified information. Of the closed spaces, the radio room is closed on tours to avoid disrupting classified work there. However, the nuclear propulsion plant is off limits to protect classified design and silencing features.[11] Both of these spaces could be opened to verification teams using detection equipment if the sensitive areas were either concealed or obscured in some manner. The easiest way to obscure the objects being monitored is by draping cloth over, or in front of the classified features.[12] While inconvenient, this would allow monitoring of compartments that are closed to unauthorized persons for security reasons.

Monitoring onshore activities for tactical naval nuclear weapons is possible by following the basic regime established for the INF Treaty. These measures include no-notice intrusive on site inspections as well as portal monitoring equipment at missile production facilities.[13] While the INF regime would have to be modified to reflect the fact that a ban on naval tactical nuclear weapons affects warheads and not SLCMs or bombs themselves, such modifications would be relatively easy to negotiate when compared to the typical difficulties encountered in arms control negotiations.[14] Finally, the charge that verification would compromise ships' operating schedules was partially overcome when the Navy announced that routine ship movements would no longer be classified.[15] This action greatly reduces the difficulty of planning onsite verification by revealing deployment schedules. Random intrusive inspections just prior to deployment would probably be the most effective way to verify a nuclear weapons ban, as the unit would be fully loaded out prior to going overseas.

B. CHEATERS NEVER PROSPER

If using intrusive verification on naval units is possible to insure that they do not contain tactical nuclear weapons, then one obstacle remains to be overcome. This is the fear that even though the USSR complies with the letter

of a treaty banning these weapons, it will not follow the spirit of the treaty.[16] This fear is based on the theory that the Soviets will continue to build and store naval nuclear weapons at sites apart from those covered by a treaty. These weapons could then be deployed during a crisis. Rigorous enforcement of the verification regime should strongly discourage non-compliance. Each side can be sure that covert nuclear deployments would be very difficult to hide for an extended period. However, no verification program can guarantee that a few weapons could not be clandestinely deployed. The real question is could such cheating be carried on such a scale as to be militarily significant, and would such cheating be worth the risk of being caught?[17] Some would argue that if the Soviets had any chance to destroy a carrier battle group with a nuclear weapon they would cheat on a treaty to maintain the opportunity to do so.[18] However, without a ban on tactical naval nuclear weapons, US carrier groups are certainly, rather than possibly, threatened with destruction by these weapons. Short of actual war, the political risks for the USSR associated with being caught cheating are enormous. In an era when the USSR wants to be known as a friendly nation in order to maintain economic and technical ties to the West, being caught cheating on an arms control treaty is about the worst scenario for the Soviets short of the return of a hardline government. The swift cutoff of

Western aid and trade during the abortive August 1991 coup should signal what is in store for the USSR if it tries to restart the Cold War.

In short, cheating on a treaty banning tactical naval nuclear weapons would not buy the USSR a significanty different military situation than exists now without a treaty. However, if the Soviets were caught cheating, they would be in a far worse political and economic situation then they are in now. The nature of tactical naval nuclear weapons and maritime operations makes verification a difficult task. However, eliminating these weapons will be very beneficial to the US Navy, and often the most beneficial programs are the most difficult to accomplish. Intrusive verification of naval units cannot guarantee there will be no cheating, but neither can the INF Treaty absolutely guarantee that the Soviets do not possess some banned SS-20s. It is better for the United States to attempt to negotiate an intrusive verification regime and follow the Russian proverb "trust - but verify" than not to try banning these weapons. After all, the most significant factor the United States has to lose is the Soviet nuclear threat to its carriers. In the words of Admiral Crowe: "The degree of difficulty assigned to verification issues is inversely proportional to a nation's desire to accomplish arms control."[19]

[1]Antonia H. Chayes and Alram Chayes, "From Law Enforcement to Settlement Dispute," International Security, Spring 1990, p.156.

[2]USDOD, Report on Naval Arms Control, pp.10-12.

[3]Interview with Mark Rowland, Lawrence Livermore National Laboratory, 15 July 1991.

[4]Strobe Talbot, "Why START Stopped," Foreign Affairs, Fall 1988, pp.62-64.

[5]Steve Fetter, et al, "Gamma-Ray Measurments of a Soviet Cruise Missile Warhead," Science, 18 May 1990, pp.828-833.

[6]Author's personal experience as Command Duty Officer onboard USS Merrill (DD-976) 1983-84, USS Halsey (CG-16) 1985-86, and USS Fletcher (DD-992) 1987-89.

[7]Interview with Paul Taylor, Assistant for Public Affairs, US Naval Submarine Base, Banger, 28 August 1991.

[8]US Navy, Mannual for the Disclosure of Classified Military Information to Foreign Governments and International Organizations (OPNAVINST 5510.48J), 1983.

[9]Taylor interview, 28 August 1991.

[10]Interview with Joshua Handler, Greenpeace, 21 August 1991.

[11]Taylor interview, 28 August 1991.

[12]Barry Blechman, et al., The US Stake in Naval Arms Control , (Washington, DC: Henry L. Stimson Center, 1990), p.387.

[13]US Arms Control and Disarmament Agency, Understanding the INF Treaty, 1988, pp.26-30.

[14]Interview with Richard Fieldhouse, National Resources Defense Council, 21 May 1991.

[15]John Burlage, "Navy Unclassifies Routine Ship Movements," Navy Times, 9 September 1991, p.8.

[16]Roger W. Barnett, "Naval Arms Control: A One Way Channel," Strategic Review, Summer 1990, p.40.

[17]Terry Terriff, "Controlling Nuclear SLCM," pp.63-64.

[18]Barnett, "Naval Arms Control," p.39.

[19]Interview with ADM William J. Crowe, Former Chairman US Joint Chiefs of Staff, 25 July 1991.

VII. CONCLUSIONS

Maintaining a stockpile of naval tactical nuclear weapons is no longer in the national interest of the United States. The naval tactical nuclear weapons that the US Navy has in storage neither provide adequate deterrence nor increased warfighting capability. If the US and the USSR both eliminated these weapons, the US Navy would be in a more dominant position compared to the Soviet Navy then it is now.

President Bush's announcement on 27 September 1991 that all naval tactical nuclear weapons will be placed in storage does not go far enough toward reducing the nuclear threat to the US Navy. This thesis argues that the United States should accept Soviet President Gorbachev's proposal for negotiations leading to a complete ban on naval tactical nuclear weapons.

Since both the US and USSR have announced the removal of their naval tactical nuclear weapons from operational units, while at the same time maintaining them in storage, the unverifiable arms control pact that the US Navy has always feared has come to pass. The United States has tacitly agreed to a ban on naval tactical nuclear weapons without making any provisions for verifying Soviet compliance. This is not a good siuation, because all the drawbacks associated with these weapons remain, and none of the benefits of

removing them the naval inventory have been realized. As long as tactical naval nuclear weapons are still in the US inventory, the costs for maintaining, storing and training on these weapons will continue to be incurred. Additionally, limitations on access to international facilities may occur. Moreover, in the present situation of unverified agreement, the Soviets still have access to non-strategic naval nuclear weapons. There is no assurance that some of these weapons will not find their way onboard a Soviet warship during unsettled times in the USSR. These issues can be resolved if the United States seeks a mutually verifiabe treaty with the USSR completely banning naval tactical nuclear weapons.

Elimination of tactical naval naval nuclear weapons means that the US Navy will give up its ability to conduct nuclear strike warfare in exchange for greater survivability of US carriers and their battle groups. Banning all non-strategic naval nuclear weapons, including land based antiship missiles, provides an opportunity for the US and USSR to act on naval arms control in a tangible and verifiable way.

The major problem with retaining non-SLBM seabased nuclear systems, even in storage, is that their existence helps justify the USSR maintaining a naval tactical nuclear arsenal. To compensate for its shortcomings the USSR has equipped its fleet for a sudden one-shot attack against the

US Navy. This decisive battle is the only way the Soviets could prevail at sea against the US. Far from weakening US naval strength, complete elimination of naval tactical nuclear weapons will leave the US Navy considerably stronger relative to the Soviet Navy.

Eliminating tactical naval nuclear weapons would benefit the United States by greatly reducing the first strike kill probability during a no-notice attack against a battle group by a limited Soviet force. Additionally, by banning these weapons, the threshold for nuclear war at sea would be raised, because Soviet forces would probably not deem a nuclear strike necessary against an opponent armed solely with conventional arms. The elimination of these weapons would reduce the number of conflicting missions required of each operational naval unit, increasing the battle group commander's ability to control his assets without interference from higher authority. Additionally, this action would eliminate the politically sensitive "can neither confirm nor deny the presence of nuclear weapons" issue when visiting foreign ports.

The Soviets surely realize that lack of tactical seabased nuclear weapons will weaken them verses the US Navy. However, their overriding military concern is the security of their homeland. They appear willing to sacrifice tactical naval nuclear weapons in order to eliminate the naval tactical nuclear weapons threat to the

USSR. Therefore, the Soviet Union can be induced into cooperating with the United States because they would benefit from eliminating tactical naval nuclear weapons by removing a significant nuclear threat to the Soviet homeland, particularly the nuclear armed sea launched cruise missile.

The financial savings associated with complete elimination of tactical naval nuclear weapons, rather than placing them in storage, are considerable. Their $500 million annual cost will remain if non-strategic naval nuclear weapons are merely stored away and not eliminated.

Another important reason for eliminating naval tactical nuclear weapons is the precedent it sets in the field of nuclear nonproliferation. The easiest way to discourage the proliferation of naval nuclear weapons is to demonstrate the lack of utility of tactical naval nuclear weapons and to remove the nuclear threat from non-SLBM naval systems.

Verification is probably the most contentious of issues surrounding a ban on nuclear weapons at sea. An intrusive inspection regime is required. Nonintrusive inspections are useful but do not insure compliance. Intrusive inspections will involve some inconvenience to the fleet, but would be less time consuming and expensive than the costs associated with nuclear weapons on general purpose naval forces. A treaty banning naval tactical nuclear weapons can be verified using intrusive inspection techniques. "Trust but

verify" must be the watchwords for any treaty between the US and USSR on these weapons. The current situation where there is a de facto agreement that each nation will place its tactical naval nuclear weapons in storage is illogical. For years the United States has opposed an unverifiable naval arms control agreement, and today that situation exists. The way to correct this problem is to accept President Gorbachev's request for negotiations on naval tactical nuclear weapons. Then work to draft a treaty, banning these weapons, that is both equitable and verifiable.

APPENDIX

SOVIET PROPOSALS FOR NAVAL ARMS CONTROL

JULY 1986-PRESIDENT GORBACHEV

-Make Indian Ocean "Zone of Peace"
-Create ASW Free Areas

JULY 1987-PRESIDENT GORBACHEV

-Limit naval approaches to opposition coastlines
-Curtail exercises in international straits

OCTOBER 1987-PRESIDENT GORBACHEV

-Artic "Zone of Peace"
-Reduce naval activity in Northern Hemisphere
-Restrict with prior consultation naval activity in the Baltic, Greenland, North and Norwegian Seas.

FEBURARY 1988-DEFENSE MINISTER YAZOV

-Arms control not just for Europe but also for adjoining naval areas.

MARCH 1988-PRESIDENT GORBACHEV

-Withdrew US/USSR fleets from Mediterranean

SEPTEMBER 1988-PRESIDENT GORBACHEV

-Reduction of forces in Sea of Japan
-Dual withdrawal from Cam Rahn Bay and Subic Bay

OCTOBER 1988-DEPUTY FOREIGN MINISTER PETROUSKY

-Southern hemisphere "Zone of Peace"

FEBRUARY 1990-INTERNATIONAL SEMINAR ON LIMITING THE ARMS RACE

-Prevent ships from approaching opposition coastline within range of onboard nuclear weapons.

SEPTEMBER 1990-PRESIDENT GORBACHEV

-Negotiate a ban on all naval tactical nuclear weapons.

BIBLIOGRAPHY

Alchowa, Eric, OP-410D. Interview, 20 August 1991.

Ambrose, Steven E. Eisenhower: The President. New York:Simon and Schuster, 1984.

Arkin, William M. "Navy Autonomy Thwarts Arms Control." Bulletin of Atomic Scientists, September 1987.

_____. The Nuclear Arms Race at Sea. Washington D.C.: Greenpeace, 1987.

_____ and Handler, Joshua. "Nuclear Disasters at Sea, Then and Now." Bulletin of Atomic Scientists, January 1990.

_____ and Handler, Joshua. Nuclear Warships and Naval Nuclear Weapons 1990. Washington DC: Greenpeace, 1987

_____ and Handler, Joshua. "Seapower." American Defense Annual: 1990-1991, 1991.

Astafyev, Aleksandr. "Disarmament and The Navies." Soviet Military Review, July 1989.

Ball, Desmond. "Nuclear War at Sea." International Security, Winter 1985/1986.

Barnett, Roger W. "Naval Arms Control: A One Way Channel." Strategic Review, Summer 1990.

Blechman, Barry, et al. The US Stake in Naval Arms Control. Washington DC: Henry L. Stimson Center, 1990.

Bond, David. "Navy Mulls Nuclear Tomahawk Needs: Seeks to Extend Production Program." Aviation Week and Space Technology, 4 June 1990.

Boyes, Jon and Ruhe, W.J. "The Submarine SLCM Problem." Submarine Review, January 1990.

Bradley, Omar N. A Generals Life. Washington: Simon and Schuster, 1983.

Breemer, Jan. Soviet Submarines: Design, Development, Tactics. London: Janes Information Group, 1989.

Brooks, Linton F. and Miller, Franklin C. "Nuclear Weapons at Sea." US Naval Institute Proceedings, August 1989.

Brooks, Thomas A. "A US View - Still Cautious." US Naval Institute Proceedings, May 1991.

Bunn, Matthew. "Arms Control's Enduring Worth." Foreign Policy, Summer 1990.

Burlage, John. "Navy Declassifies Routine Ship Movements." Navy Times, 9 September 1991.

Burt, Richard. "The Strategic Arms Reduction Talks." NATO Review, August 1989.

Bystrov, Yuri. "International Seminar on Limiting the Arms Race." trans. U.S. Naval Technical Intelligence Center, Morkoy Sbornik, No.6/1990.

Chayes, Antonia H. and Chayes, Abram. "From Law Enforcement to Settlement Dispute." International Security, Spring 1990.

Cheney, Richard, Secretary of Defense, Speech, Monterey, CA, 4 April 1991.

Chernavin, V. "The Lessons of War and the Modern Era (Part II)." trans. US Naval Technical Intelligence Center, Morskoy Sbornik, No.2/1990.

Cochran, Thomas. "Black Sea Experiment Only a Start." Bulletin of Atomic Scientists, November 1989.

Condit, Doris M. History of the Office of the Secretary of Defense: The Test of War 1950-1953. Washington: DOD Historical Office, 1988.

Congressional Budget Office Analyst, Letter to author, 28 August 1991.

Crowe, ADM William J. Former Chairman, US Joint Chiefs of Staff. Interview, 25 July 1991.

_____ and Romberg, Alan D. "Rethinking Security in the Pacific." Foreign Affairs, Spring 1991.

Daniel, Donald C. F. "Naval Power and European Security." Defense Analysis, December 1989.

Davis, Vincent. The Admirals Lobby. Chapel Hill: University of North Carolina Press, 1967.

Durrant, Damian and Handler, Joshua. "Deep-Six B90 Bomb." Bulletin of Atomic Scientists, July 1990.

Eberle, James. "Global Security and Naval Arms Control." Survival, July/August 1990.

_____. "Naval Arms Control: Where Do We Go From Here?" (Part I)." Naval Forces, Vol.X No.IV/1989.

_____. "Naval Arms Control: Where Do We Go From Here?" (Part II)." Naval Forces, Vol.X No.V/1989.

Fetter, Steve, et al."Gamma-Ray Measurements of a Soviet Cruise-Missile Warhead." Science, May 18,1990.

Fieldhouse, Richard. "Nuclear Weapons at Sea." Bulletin of Atomic Scientists, September 1987.

_____. National Resources Defense Council, Interview, 21 May 1991.

Flacco, Nicholas L. "Whether to Confirm of Deny." US Naval Institute Proceedings, January 1990.

Fursdon, Edward. "Arms Control: Optimism But Major Difficulties Remain." Pacific Defense Reporter, December 1989.

Handler, Joshua and Arkin, William. "Nuclear Disasters at Sea, Then and Now." Bulletin of Atomic Scientists,

_____. Greenpeace. Interview, 21 August 1991.

Hill, J.R. Arms Control At Sea. Annapolis: Naval Institute Press, 1988.

Hoffman, Jon T. "Naval Arms Control Wins." US Naval Institute Proceedings, July 1991.

Jane's Fighting Ships 1991-92. London: Jane's Information Group, 1991.

Jane's Weapons Systems 1991-92. London: Jane's Information Group, 1991.

Kardebo, Stanley W. "US Fires Over 25% of its Land Attack Tomahawks in First Week of War." Aviation Week and Space Technology, 26 January 1991.

Kihune, VADM Robert K. Assistant Chief of Naval Operations, Surface Warfare, Speech, Monterey, CA, 25 July 1991.

Kozyrev, S. "Tiblisi, Riga and so on." trans. US Naval Technical Intelligence Center, Morskoy Sbornik, No.6/1990.

Lehman, John F. Command of the Seas. New York: Scribner's, 1988.

_____. Former Secretary of the Navy, Letter to author, 8 August 1991.

Lynn, Bill. Senator Kennedy's Staff, Interview, 5 August 1991.

McClellan, Barbara, Budget Officer, OP-09N. Interview, 29 August 1991.

McCormick, Gordon H. and Miller, Mark E. "American Seapower at Risk: Nuclear Weapons in Soviet Naval Planning." Orbis, Summer 1981.

McCoy, James. "Naval Arms Control: Ante Up." US Naval Institute Proceedings, September 1990.

National Academy of Sciences. Implications of Advancing Technology for Naval Operators in the Twenty First Century (Navy 21). Vol.I., Washington: National Academy Press, 1988.

Nikitin, V. "Tomahawk: Unpredictable Consequences of a New Design," trans. US Naval Technical Intelligence Center, Morskoy Sbornik, No.7/1989.

Nitze, Paul H. From Hiroshima to Glasnost. New York: Grove Wiedenfeld, 1989.

_____. Former START and INF Chief Negotiator. Letter to author, 4 June 1991.

Posen, Barry R. "US Maritime Strategy: A Dangerous Game." Bulletin of Atomic Scientists, September 1987.

Pugh, Micheal. "Nuclear Warship Visiting: Storms in Ports." The World Today, October 1989.

Ranger, Robin and Zackheim, Dov S. "Arms Control Demands Compliance." Orbis, Spring 1990.

Rantand, Bryan and Till, Geoffrey. The Sea in Soviet Strategy. Annapolis: Naval Institute Press, 1989.

Reardon, Steven L. History of the Office of the Secretary of Defense: The Formative Years: 1947-1950. Washington: OSD Historical Office, 1984.

Rogov, Sergey. "Detente is Not Enough." Foreign Policy, Spring 1989.

Rosen, Philip T. "The Treaty Navy." in In Peace and War, ed Kenneth J. Hagan. London, Greenwood Press, 1978.

Rowland, Mark, Lawrence Livermore National Laboratory. Interview, 15 July 1991.

Schaffer, LCDR Thomas, OP-392. Interview, 21 August 1991.

Schemmer, Benjamin. "Interview with Senator John McCain." Armed Forces Journel International, January 1990.

Schultz, LT John. Former ASW Officer Destroyer Squadron 31, Interview, August 1991.

"Soviet Proposals for Arms Control at Sea." RUSI Newsbrief, January 1989.

Steignam, David S. "Nuke Removal Signals Changes," Navy Times, 14 October 1991.

Talbott, Strobe. "Why START Stopped." Foreign Affairs, Fall 1988.

Thompson, Robert, Naval Ordinance Station Indian Head Detachment, McAllister, OK, Interview, 21 August 1991.

Trost, Admiral Carlisle A. H. "American Security Interest and the US Navy." Naval War College Review, Spring 1989.

Thomas, Gerry S. "The Gorbachev Gambit." Naval Forces, November 1989.

US Arms Control and Disarmament Agency. Annual Report to Congress, 1990.

US Arms Control and Disarmament Agency, Understanding the INF Treaty, 1988.

US Congress, House, Appropriations Committee, Hearings on Research, Development, Test, and Evaluation: Navy Before the Defense Subcommittee, 100th Cong., 1st. Session.

US Congress, Senate, Approaches to Naval Arms Control: Hearings before the Subcommittee on Projection Forces and Regional Defense of the Armed Services Committee. 101st Cong., 2nd Sess., 1990.

US Department of Defense. Report on Naval Arms Control, 1991.

US Department of State. Speech of Secretary Baker: 23 October 1989 at San Francisco, 1989.

US Navy, Mannual for Disclosure of Classified Information to Foreign Governments and International Organizations (OPNAVINST 5510.48J), 1983.

Waldrip, CDR Randall. Former Maintenance Officer of Patrol Squadron 50 (VP-50). Interview, 26 August 1991.

Weinberger, Casper Willard, Former Secretary of Defense, Letter to author, 11 September 1991.

Williams, CDR Kenneth. ASW Curricular Officer, Naval Postgraduate School, Interview, 5 August 1991.

Yost, David. "Controlling SLCMs: The Most Difficult Question." US Naval Institute Proceedings, September 1989.

INITIAL DISTRIBUTION LIST

	No. Copies
1. Defense Technical Information Center Cameron Station Alexandria, VA 22304-6145	2
2. Library, Code 52 Naval Postgraduate School Monterey, CA 93943-5100	2
3. OP-06, The Pentagon Office of the Chief of Naval Operations Washington, DC 20350	1
4. OP-60, The Pentagon Office of the Chief of Naval Operations Washington, DC 20350	1
5. OP-65, The Pentagon Office of the Chief of Naval Operations Washington, DC 20350	1
6. OP-605, The Pentagon Office of the Chief of Naval Operations Washington, DC 20350	1
7. OP-607, The Pentagon Office of the Chief of Naval Operations Washington, DC 20350	1
8. OP-652, The Pentagon Office of the Chief of Naval Operations Washington, DC 20350	1
9. OP-653, The Pentagon Office of the Chief of Naval Operations Washington, DC 20350	1
10. Dr. Thomas Bruneau Chairman, National Security Affairs (Code NS/Bn) Naval Postgraduate School Monterey, CA 93943	1
11. Dr. Paul Stockton (Code NS/Sk) Naval Postgraduate School Monterey, CA 93943	1

12. Dr. James Wirtz 1
(Code NS/Wz)
Naval Postgraduate School
Monterey, CA 93943

13. LCDR Todd Malloy 1
2419 N. Louise St.
Santa Ana, CA 92706

423 709

DUDLEY KNOX LIBRARY
NAVAL POSTGRADUATE SCHOOL
MONTEREY CA 93943-5101

DUDLEY KNOX LIBRARY
3 2768 00019008 6